VOLUME VII NO. 7

WESTERN INDUSTRY

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July, 1942

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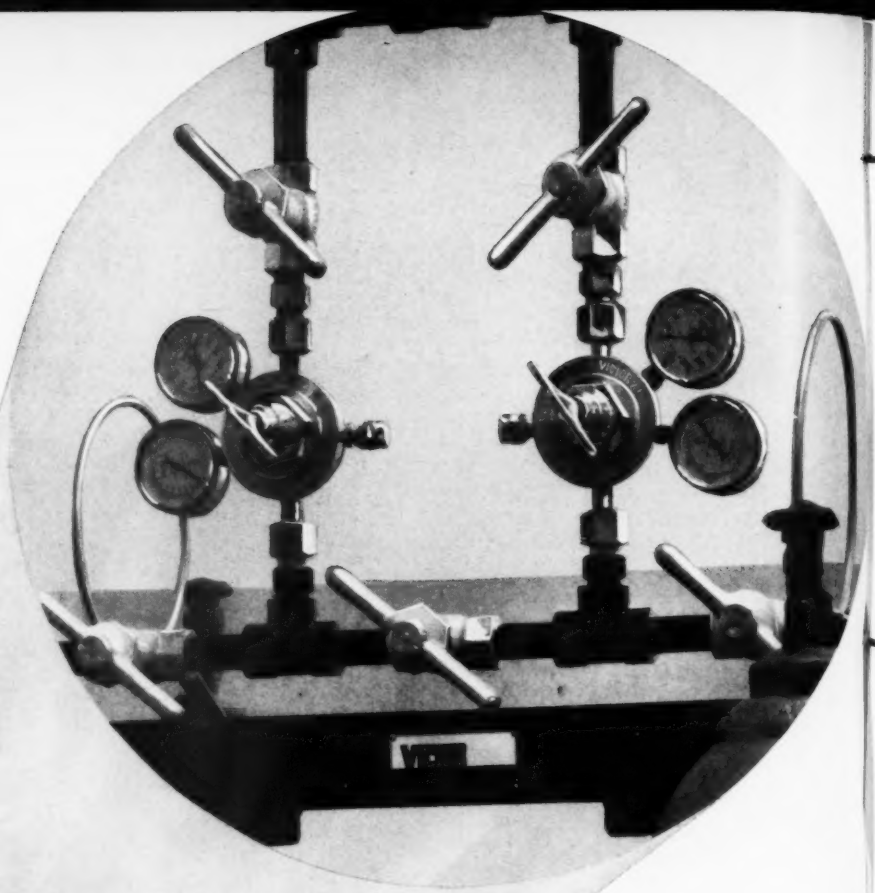

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What's New with the Editor

WHEN the supposedly-exhausted Germans suddenly take the upper hand in Libya, the Crimea and the Ukraine all at once, it makes everyone ponder as to what lies ahead. Consequently the time has come to examine our situation at home, to see whether we are as efficient as we think we are, and are doing everything of which we are capable.

Two viewpoints, one favorable and the other unfavorable, are published below, and on page 7 appears a forthright statement from Mr. Walter Johnson. Next month we will have more statements from industrial leaders all over the West. Says our first commentator:

"I would say that, in my opinion, our Western industries are doing a magnificent job. * * * It seems to me that industry in the West, as well as all over the country, is performing their task far better than could have possibly been expected of them. I feel as Mr. W. P. Witherow, president of the National Association of Manufacturers, expressed himself after having visited the Pacific Coast. He stated that it was almost unbelievable to see what had been accomplished on the Pacific Coast in the war industries.

"I think everyone will agree with me that ships today are the big bottleneck. Planes, tanks and soldiers are of no possible use if we have no ships to take them to the scene of action. I do not think that industry has fallen down on the ship program. They have established a record which less than a year ago would probably have been thought fantastic and entirely impossible. The trouble seems to be that the enemy is sinking our ships faster than we can build them. Surely we cannot blame industry for this.

"It is the task of industrialists to furnish the materials that are needed by the Army, Navy and Air Force. It is not their task, nor their responsibility, to plan how and where and when this will be used. Industry is furnishing the things which are necessary for setting our enemy 'back on their haunches,' but it is up to our Army and our Navy to use these materials for the purposes for which they were built."

Another side of the picture is presented by another industrialist, who has the following views as to what could be done to speed up our present efforts. He says:

"Until the Government of the United States learns to coordinate its various departments to the extent that the National War Labor Board fits its policies with the Office of Price Administration; and the OPA gathers some understanding about increased prices due to priorities; and we are permitted to consider taxes as an item of cost with some of our Procurement Departments, we will not meet adequate production.

"In some cases, the company has to plan as much as 40 per cent gross profit on a bid in order to end up with 3 per cent net after taxes. However, the Procurement Board won't consider such high profit. Wages are continually rising; and prices are supposed to remain the same. Materials, through allocations and inability to get sufficient quantities, cost more than the previous levels; and prices must remain the same."

WESTERN INDUSTRY

The Journal of Western Development

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COVER PICTURE

All magazines are flying the American flag on their July covers. As the war is being won under factory roofs, just as much as in the cockpits of bombers, the turrets of tanks, on the bridges of surface ships and in the conning towers of submarines, Western Industry portrays the flag flying over a domestic battlefield, the battlefield of production.

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CABCO ALL-BOUND CRATES USE LESS WOOD . . . ARE LIGHTER, STRONGER, QUICKER

Spotlight on the News

Western Industry
FOR JULY, 1942

Vol. VII No. 7

INEVITABLE TREND?

Scheduling For What and When

TWO signposts of a more completely organized economy than ever before are to be seen in orders by the WPB for a continuous audit of production requirements and by the ODT for a monthly estimate by shippers of traffic movement from their establishments. Has the tide set in for permanent business operation along this line, or will end of the war period see a swing away toward individual initiative and less cooperation?

All manufacturing users of metals in excess of $5,000 worth per calendar quarter have been required by WPB to file Production Requirements Plan applications, and successive surveys of these requests, in order to guage the national need for raw materials, manufactured parts, etc., will be made out of Washington.

Obviously it will do for inventory scheduling what the income tax did for keeping books, namely, that order and system will replace previous methods. Some of the government officials report that manufacturers are already saying they understand inventories for the first time in their lives. Compliance officials will check up on business, just as the income tax men do.

ODT's order only covers a representative section of manufacturers, producers and distributors to begin with, but, like other ODT programs, will undoubtedly be extended further.

Conversion Reaches End of the Trail

"Conversion is a dead duck," reports the Research Institute of America. In other words, the period of converting industries from normal production to war production is over. Two reasons for this sudden shift of emphasis by the architects of the national war economy are given, as follows:

1. Early birds in war production are beating plant production quotas by huge margins. National quotas can be met without much help from plants not yet converted. The bottleneck in machine facilities is just about whipped.

2. Plants now on war production are devouring materials at an unanticipated clip. Available materials will be kept flowing to these plants rather than diverted to building, converting and feeding new war facilities.

• *Transportation is admittedly the key to success in today's war effort. Locomotives to haul the immense freight trains require shops for overhauling, repairing and rebuilding that are big factories in themselves. Accompanying picture shows one of the main locomotive shops in the West.*

Made to help cut the Hide off Hitler!

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STANDARD OIL COMPANY OF CALIFORNIA

LET'S FIND OUT RIGHT NOW!

What More Can We Do So We Will Win This War?

By WALTER S. JOHNSON

THE United Nations are continuing to lose more battles and the overseas news is disheartening. Many of our brave soldiers and great numbers of our American workmen are captives in the hands of a desperate enemy. The sinking of ships on our Atlantic Coast is a terrific loss that is on the increase. In short, we are steadily losing this war.

Industry is doing a fine job of production that in peace time would be considered magnificent, but we are in a desperate war and measured by our needs, the job is falling short. We must do more if we are to win. Our shipbuilding must exceed ship sinkings by a substantial margin if we hope to transport supplies sufficient to sustain our overseas efforts.

Some of our industries are performing near top speed, but far too many industries are lagging. Labor leaders object to speedup that is urged by management. They want to be responsible for any speedup and their personal interests are against a speedup that would cut down the number of workmen paying them dues.

The skilled labor shortage is being increased by the maintenance of the 40-hour week, which makes the costs for overtime too high for many industries to bear, particularly in the face of the rapid wage increases that have been made which far exceed the rising costs of living.

Our President and public officials have proclaimed this an "All-Our War," calling for sacrifices on the part of all of our citizens. This is followed by unprecedented wage-increase demands, vacations with pay, overtime bonuses and so-called union security demands and jurisdictional labor disputes, slow-downs and strikes.

The labor bosses are capitalizing this "All-Out War" effort to a point where even Congress is browbeaten into accepting whatever the labor pressure groups insist upon. The President is insistent upon the continuation and expansion of all the social and labor gains. His labor boards play hand in hand with labor pressure groups and boost wages as a matter of course.

Despite the "All-Out War," Congress tables every important matter until after election. Donald Nelson asks maximum production of industry on a 24-hour seven-day basis, yet urges the retention of the 40-hour-per-week law which was never intended to fit war conditions. In consequence, workmen must be given a bonus to give to our Nation their capacity to produce.

With no ceiling on wages, the cost-plus contractors are robbing industry of many of its skilled workmen by outbidding what industry can afford to pay, thus augmenting their profits. "All-Out" production to meet the needs of an "All-Out War" cannot be accomplished until we—

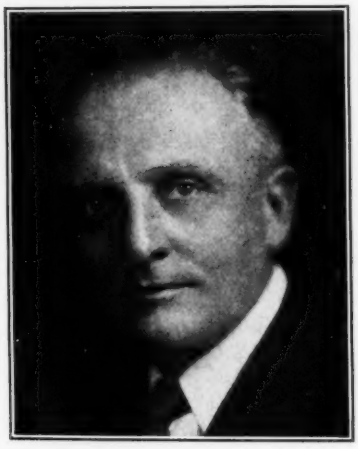
1. Abandon social and labor reforms that hamper the war effort.
2. Abandon the quest of less work for more money.
3. Think in terms of overtime production instead of overtime pay.
4. Restrain cost-plus contractors from benefiting through high labor costs.
5. Eliminate all projects created to care for the depression period such as WPA and NYA.
6. Make strikes illegal and freeze the closed-shop issue for the duration in all industries.
7. Cut down the red tape which hampers industrial expansion to meet war needs.
8. Discourage or eliminate vacations or holidays in all industries for the duration.

The profits to industrialists should be maintained but not permitted to mount beyond a reasonable profit margin, and proper protection should be given those industries which have overextended themselves to do their part in supplying the nation's war needs.

The national psychology must change if we escape the fate of France. Individual selfishnesses must be supplanted with individual sacrifice. So far personal greed has influenced too many individuals, pressure groups and politicians.

It is not enough that 25 per cent of our people are giving their full efforts to support the armed forces that are protecting us from our aggressor enemies. Not until the overwhelming majority of our people think and act in terms of national unity, longer work weeks in all industries and greater service instead of greater profits, can we hope to reach the maximum of our productive capacity.

Let's roll up our sleeves and produce—regardless of profits, wage increases, social reforms, political gains—to the end that our fighting forces may gain the offensive now instead of waiting for that unknown day that may come too late to save us and our nation from the disaster that is staring us in the face now!



WALTER S. JOHNSON
Says We Can Do More

• *Everyone has an uneasy feeling that all of us could do a lot more to win the war, and that our vast production, remarkable as it is, still isn't enough to cope with the present unfavorable war situation. Mr. Johnson, who is president of the American Box Corporation, San Francisco, directing the operation of a number of sawmills and box factories, and also general chairman of the Pacific Coast Transportation Advisory Board, here expresses his views. More comment next month.*

Going Strong, But Need More Supplies

"No doubt in many cases the productive result of Pacific Coast industry does not represent the true effort put forth by management and employees," reports the chairman of one of the leading Pacific Coast factories, "but represents production resulting from the availability of necessary materials and supplies not within the control of management.

"In such cases production deliveries have stepped up directly in proportion to the increasing amount of materials and supplies available. Until such time as there is an available surplus of all required materials and supplies, industry will not be able to reach ultimate plant capacity.

"This does not mean that industry is not generally keeping up to the production schedules set by the government. No doubt many concerns are in the same position as ours, namely, we were considerably ahead of our schedule in December of last year and have succeeded in the meantime in more than doubling the rate of production. Further, we have planned and have reason to believe that the present rate of production will be doubled before the end of this year."

LOS ANGELES LABOR CONSULTANT

Employee Relations Can't Be Frozen and Forgotten

As told to James H. Collins by Irving Stalmaster, Industrial Relations Consultant, Los Angeles

WE HEAR a good deal, today, about "freezing labor relations for the duration." There is a popular demand that something of the kind be done. There are employers who feel that, if a truce can be declared on wages and hours, no further trouble will occur in this department of the business—and that with the end of war, different conditions may make it possible to drive better bargains.

However, if wages and hours were frozen, there would still remain the job of sound *employee* relations—an entirely different thing. Labor relations may deal with the *quantity* factor—the amount of money that is to be paid for so many hours of work.

But employee relations must deal with a *quality* factor.

These employees are human beings. They have differences of skill, experience, education, ambition, capacity for supervision, for invention, for leadership. They also have their personal problems, and in their association together, likes and dislikes arise, and create more problems.

The employee-relations job involves setting up machinery to find out what each employee is best fitted to do, discover frictions and worries that can be eliminated when they are small, but which can grow into serious "labor" trouble if neglected—in fact, it involves making a team of the human beings you have, so to speak. With good employee relations, you will have a better organization for war, and you will have a winning team for peace.

The job of creating and maintaining good employee relations is a matter of daily contact and concern.

Management must know what is going on at the different work levels, not merely the frictions, but the abilities and loyalties as well.

Otherwise, trouble may come from below, and orders given by management will not be carried out as planned. Management that makes decisions and issues orders without knowing what is going on throughout the organization, will often find that they are unworkable, or positively destructive. It is in the predicament of the general who waves his sword and shouts "Charge!" and finds his soldiers riding off in all directions.

In the past, efforts to find out what was happening down below often took the form of the plant "spy," who reported only what was wrong.

Under a modern employee-relations plan, more attention is paid to everything that is right. If one new employee is found to be ambitious, inventive, inclined to lead, the news is worth just as much as the bad reports on employees who are temperamentally misfits.

In one of the Los Angeles war plants, a skilled workman suddenly began to have spoilages.

His foreman reproved him, and when the spoilage went on, gave him a "good old-fashioned bawling out."

The man demanded his time.

That company could not afford to lose that man's skill these days, and fortunately an investigation was made by management.

They found that the workman's wife had gone to the hospital, that he was worried about money, could not concentrate on his job.

This plant has a credit union. Arrangements were made to fund his debts, and take care of hospital expenses on installments. The general manager sent his own doctor to see the woman, and talk with hospital doctors, making a reassuring report to the husband. There was no more trouble with spoilages.

This company, some months ago, settled its *labor* relations in a union contract, assuming that it could look forward to labor peace during the war.

But it has not yet made plans to take care of *employee* relations. Otherwise, this foreman would not have passed blind judgment on a good workman, but would have tried to be understanding, made inquiries, told management, and given an opportunity to do, as routine, just what was done in an extraordinary situation.

• *Management must know what is going on—not merely the frictions, but the abilities and loyalties. (Photo courtesy Lockheed Aircraft Corporation.)*

Today, in the hurry of war production, many small as well as large concerns are setting up sound plans for employee-relations along this general line:

Somebody is definitely charged with finding out and keeping in touch with what goes on, not only in the working department levels, but also in all levels of management supervision.

Discords at the different work levels, as well as individual abilities, are reported higher up, for action. And management's decisions, plans and orders are interpreted to those who must carry them out in the working departments.

This "somebody" is generally given the title of "personnel director," and must be rather a special kind of human being, with knowledge of people, able to inspire their confidence, and also have a general grasp of all phases of management methods.

In organizations from 500 workers up, the value of a capable personnel man warrants hiring a specialist, on a full-time basis, and even giving him assistants.

In smaller organizations, personnel work is being capably handled on a part-time basis, often by an employee who has shown an understanding of people, and social relations, and who also understands management methods and problems of production.

In still other small organizations, good personnel relations are maintained by the type of employer who knows all his workers personally, or by a superintendent who regards every man and woman as a member of a family, which he wants to keep busy and happy.

Personnel management deals largely with intangibles affecting the efficiency and morale of people at work. It carries on studies to get facts upon which management can improve its dealings with employees. By getting a better understanding of how employees will react to a given policy, it enables management to foresee how workers will respond, and often makes it possible to anticipate workers' reactions, and interpret policy accordingly.

Many of the things that management does should give no reason for suspicion or fear on the part of employees, yet there will be suspicion or fear, nevertheless. Personnel directors must know how to detect such apprehensions, and devise methods for eliminating them.

Very often, it is not what management does, but how it does it, that convinces employees of the employer's good faith and desire to deal fairly. For lack of proper advance preparation and explanation, policies beneficial to employees have been rejected by them, in suspicion. With advance preparation, based on understanding of employee attitudes, the same policies would have been accepted.

Personnel management involves also

• *"Maintaining good employee relations is a matter of daily concern"—note the safety devices and clean work of these Douglas Aircraft men handling molten metal. (Photo courtesy Douglas Aircraft Company.)*

teaching foremen, supervisors and executives in position of authority, in the more humane and effective methods of dealing with workers. Intelligent training based on what is not known about work relationships, and the behavior of people working together, can contribute to high morale and proficiency.

It has long been the practice to give the foreman or supervisor authority to discipline workers under their direction, and even to hire and fire.

When a supervisor, strong technically, but weak in human understanding, has such authority, he can do much to wreck management plans by making ill-considered decisions or taking unintelligent action.

Teaching therefore is directed toward bringing an understanding of the methods of personnel administration, reporting facts that affect the human welfare of the organization, and refraining from the hasty judgments that have too often characterized subordinate supervisors.

The personnel man does not displace anyone—his task is to help those charged with responsibility to get better results in operation.

War offers both handicaps and opportunities for personnel management.

The handicaps are well known—heavy turnover of employees through men being drawn away to the military services, as well as to other employment; the necessity for expanding work forces with almost any labor obtainable; exaggerated ideas of capacity and earning power on the part of employees who, in normal times, might not even be employed; the replacement of men by women; and other kinds of hurry and confusion.

But the advantages of war are a common national motive for loyal work, a willingness to overlook petty irritations that would make trouble in ordinary times, and a spirit of teamwork between people who, in other times, might be antagonistic toward each other.

To those concerned with organized-labor problems, it may be well to say that unions must and do strive to win the workers' support and loyalty, for upon this alone do they prosper. In organizing them, unions frequently alienate the workers' loyalty from both job and employer.

Industry must so plan its personnel relations that it will always retain that loyalty. By sound planning today, many employers are giving a minimum basis for concern with union activities.

The employee may depend upon his labor organization to bargain, and handle routine problems. But that is selling his labor in the *quantity* market.

He has more to sell an employer—individual ability, initiative, invention, leadership.

If through good personnel management he can find a market for the *quality* of his labor as well as of his personality, then he will feel that he need not depend entirely upon his union to get fair play.

Jewelry To Field Radio

HERE is a typical instance of conversion of manufacturing facilities to get into war work. A manufacturing unit which normally produced expensive jewelry, watch cases and other items is getting into production of a quartz crystal oscillator used in field radio equipment. The Production division of WPB is urgently asking manufacturers to investigate all possibilities of plant conversion to work.

Here is the typical instance of the jewelry manufacturers and how they converted:

An essential part of a certain type of field radio equipment used by the services is a quartz crystal oscillator that has the peculiar power of controlling electrical frequency due to mechanical oscillation. With thousands of these field sets in production, the demand for this variety of crystal far exceeds anything dreamed of for civilian use.

To cut these crystals—tiny wafers of flawless quartz 3/4 in. square by 1/32 in. thick—a firm of manufacturing jewelers has spent the past few months building intricate machinery for mass production. Recently it started work on an educational order, and if all goes well, the firm shortly will turn out the crystals in large quantities.

The company, which normally manufactures expensive jewelry, watch cases and similar items, plans to work on a subcontract basis for a firm which has cut this particular type of crystal for years. Its facilities will step up production of the crystals by 500 a day.

An old employe's knowledge of precision gem cutting and the ability to build its own machinery were the jewelry firm's principal assets in obtaining an order. The prime contractor sent men into the plant to contribute knowledge of the electrical properties of the stone, and to help engineer the building of the necessary equipment.

Seattle firms engaged in war work will require an additional 46,000 persons for employment by January 1943. This figure followed a survey made for the labor supply division of the Civilian War Commission of Seattle by the war industries and resources committee of the chamber of commerce.

Training "on the job" in war industry has resulted in as much as 50 per cent increase in production in some cases, according to reports of the War Production Board's labor division. Training within industry is one of the ways in which the U. S. is meeting the skilled labor crisis.

WESTERNERS AT WORK

State Chamber Vice-President

Frank Cornell, president of the Cornell Tractor Company, Salinas, has been appointed to the office of regional vice-president of the California State Chamber of Commerce for the Central Coast District, it was announced by Preston Hotchkis, president of the State Chamber. He is president of the Citizens Association of Salinas and active in civic affairs of the Salinas Valley.

FRANK CORNELL

Other regional vice-presidents, appointed by Hotchkiss, are: Hal G. Hotchkiss, San Diego realtor, for the Southern California district; George G. Pollock, president of George Pollock Company, Sacramento, for the Sacramento Valley district; D. P. Boothe, head of the Boothe Fruit Company, Modesto, for the Central Valley district; S. Parker Frisselle of Kearney Vineyard, Kearney Park, for the San Joaquin Valley district; and George C. Hoberg, of Hoberg's Resort, Lake County, for the North Coast district.

* * *

N. O. Cruver, vice-president of the Wheeler Osgood Sales Corp. of Tacoma, has been named president of Douglas Fir Plywood Association for the next year. He has been a member of the firm which he now manages for more than 20 years. Cruver succeeds E. W. Daniels, president of Harbor Plywood Corp. of Hoquiam, Wash., who headed the association for the past two years.

Frost Snyder, president of Vancouver Plywood & Veneer Co. of Vancouver, Wash., was elected vice president of the association. J. P. Simpson, vice-president of Buffelen Lumber & Mfg. Co. of Tacoma, is the new treasurer of the industry and H. E. Tenzler, president of Northwest Door Co. of Tacoma, the new secretary.

Trustees of the all-industry board are: T. B. Malarkey, vice-president of M & M Wood Working Co. of Portland, Ore.; Clay Brown, manager of plywood division of Smith Wood-Products, Inc., of Portland; J. R. Robinson, president of Robinson Manufacturing Co. of Everett, Wash., and Daniels, the retiring association president.

* * *

Charles T. Kenney, district port terminal supervisor for the Office of Defense Transportation, has opened offices at 5523 White Building, Seattle. He will be responsible for the movement of railroad cars, both passenger and freight, to and from port areas. The office expects to deal with the various railroads serving the area in cooperation with the American Association of Railroads. A few years ago Kenney was trainmaster for the Great Northern in and out of Seattle.

* * *

Two California men were named to WPB Industry Advisory Committees, it was announced. W. H. Lowe of the Paraffine Companies, Inc., of San Francisco, was appointed to the asphalt roofing committee, and James L. Vai of the Padre Vineyard Company of Los Angeles is on the distilled spirits and wine industry traffic group.

* * *

Maurice H. Greene of Boise, Idaho, was named field office manager for the Office of Defense Transportation at Boise. He was formerly attorney of the I.C.C. and for the Idaho Motor Transport Association. Greene will be manager of the ODT Motor Transport Division for the area and explain and put into effect the ODT rulings calling for curtailment of bus and motor transport and delivery services.

* * *

Fred H. Chesnut, a consulting engineer who has specialized in bus and truck transportation since 1918, has been named regional tire rationing executive by Harry F. Camp, regional administrator for the Office of Price Administration. He will have charge of tire rationing in California, Oregon, Washington, Nevada and Arizona.

Chesnut was for five years employed by the California Railroad Commission as an expert on truck and bus operating costs, and represented the commission in hearings as senior engineer of the transportation department. Previously he was transportation superintendent for Langendorf Baking Co. and before that an engineer with White Motor Co. for a number of years.

* * *

The appointment of W. C. Osborne as superintendent of Outside Production, Northrop Aircraft, Inc., has been announced by Gage H. Irving, vice-president and assistant general manager. Osborne for the past three years has headed his own firm of industrial engineers. Prior to that he served as production superintendent of the Murray Corporation.

* * *

Appointment of William M. Black, San Francisco, as a member of the Pacific Coast Regional Committee for asphalt and tarred roofing products, has been announced by OPA.

Black is manager of the San Francisco branch of the Johns-Manville Sales Corporation's building materials department.

* * *

F. A. Mainzer of Pacific Brass Foundry, San Francisco, has been elected chairman of the Northern California Chapter, American Foundrymen's Association.

F. A. MAINZER

Elected to serve with him were H. A. Bossi, H. C. Macaulay Foundry, Berkeley, vice-chairman; and George L. Kennard, Northern California Foundrymen's Institute, San Francisco, secretary-treasurer.

* * *

D. Clinton Prescott has been appointed assistant director of the Puget Sound Rental Area by Director Alfred Harsch. The rental area comprises all of Kitsap

County, and King and Pierce counties west of the Snoqualmie National Forest boundary.

Prescott is on leave of absence from duties as vice-president of Hartley Rogers & Company, Seattle investment banking firm, and has resigned from the post of comptroller of the Bellingham Iron Works in order to give full time to the work of assisting Harsch in the administration of the government rent regulation.

* * *

James H. Turner, formerly assistant engineer for Hetch Hetchy Water Supply in the Power and Utilities Engineering Bureau, has been appointed manager and chief engineer. He entered the employ of the City of San Francisco in 1922, and

JAMES H. TURNER

has supervised construction of Pulgas tunnel, Hetch Hetchy aqueduct, and Bay Crossing division, as well as supervising preparation and compiling specifications for enlargement of O'Shaughnessy dam. In connection with the San Francisco Bay Exposition he handled all phases of engineering, financing and contract work, involving contracts with engineering, legal and finance departments of the Exposition Corporation. Before his entry into city service, Turner was employed at different times by the Pacific Gas & Electric Co., the Pacific Coast Shipbuilding Co. and the Pacific Coast Glass Co.

* * *

WPB has announced the appointment of Edwin P. Lucas of the Superior Portland Cement Company, Inc., Seattle, to its Cement Industry Advisory Committee.

* * *

Hans Bohuslav, formerly associated with the Enterprise Engineering Company in San Francisco, has joined the Sterling Engine Company in Buffalo as vice-president in charge of engineering.

Bohuslav is an authority on diesel and gas engines and directed the development of the current Enterprise engines. He also served on the West Coast as consultant for various concerns, which included Bethlehem Shipbuilding Corporation, General Engineering Corporation, General Petroleum and Pacific Gear & Tool Company.

* * *

At the recent annual meeting of stockholders of the Boeing Airplane Co. in Seattle, all directors were re-elected. They are: William M. Allen, Harold E. Bowman, Darrah Corbet, Claire L. Egtvedt, P. G. Johnson, Fred P. Laudan, J. E. Schaefer, Dietrich Schmitz and H. O. West.

The present officers who were re-elected are: P. G. Johnson, president; Claire L. Egtvedt, chairman; H. O. West, executive vice-president; J. P. Murray, vice-president and eastern representative, Washington, D.C.; J. E. Schaefer, vice-president, Wichita, Kan., and Harold E. Bowman, secretary and treasurer.

* * *

Frederick H. Brundage has been appointed Western Log and Lumber Administrator of the Lumber and Lumber Products Branch, with full powers of WPB to carry out such action programs as may be necessary in order to obtain the qualities and quantities of lumber required by the war program. He has been granted a leave of absence from his position as Associate Regional Forester in the sixth region by the United States Forest Service.

* * *

John E. Cushing has been named Assistant Deputy Administrator for Ship Operations; D. F. Houlihan, Assistant Deputy Administrator for Fiscal Affairs, and Franz Schneider, Assistant Deputy Administrator for Ship Control.

Mr. Cushing, who was Pacific Coast Director for the War Shipping Administration, will be in charge of ship operations of the Administration and will perform duties formerly carried out by H. Harris Robson, who resigned as Director General of Shipping. Mr. Cushing, a resident of San Francisco, is president of the American-Hawaiian Steamship Company.

* * *

Paul Huggins, Western Gulf Oil Co., was named chairman of the Conservation Committee of California Oil Producers at its recent organization meeting. Mr. Huggins succeeds Lloyd Williamson, California Star Oil Co., who has been serving as temporary chairman since the resignation of A. H. Bell, Continental Oil Co., several months ago. Joseph Jensen, Tide Water Associated Oil Co., was elected first vice-chairman; D. L. Caldwell, Barnsdall Oil Co., second vice-chairman; and Henry Power, General Petroleum Corp., secretary. Harold Wyatt, Shell Oil Co., was elected member-at-large.

W. R. Wardner, Jr., who has been serving as assistant administrator, was appointed administrator for the committee.

* * *

Three Washington and two Oregon leaders in lumber enterprises have been appointed to the Softwood Loggers and Fiber Manufacturers Industry Advisory Committee of the War Production Board. They are: J. M. Brown, president of the Long Lake Lumber Company, Spokane; W. B. Greeley, secretary-manager of the West Coast Lumbermen's Association, Seattle; W. G. Savage, president of the Lake Washington Mill Company, Renton; Orville R. Miller, vice-president of the Mount Jefferson Lumber Company, Portland; and Charles Snellstrom, manager of Snellstrom Brothers, Inc., Eugene.

* * *

John M. Rogers, vice president in charge of sales for Douglas Aircraft Co., has been assigned the role of coordinator for the company's activities in the assem-

JOHN M. ROGERS

bly and servicing of military airplanes. Previously, Rogers was the Douglas Washington representative for liaison with the Army, Navy and Marine Corps.

* * *

Promotions for five Santa Fe Railway employees in the freight traffic department were announced by Berne Levy, general freight agent, San Francisco. Loren R. White, traveling freight agent, Fresno, was promoted to traveling freight agent, Bakersfield. White's post is being filled by Jack E. Place, formerly city freight agent in Oakland.

Harvey A. Mulder, city freight agent, San Francisco, succeeds Place in Oakland, while Harry L. Barrell, formerly a chief clerk in the foreign freight department, San Francisco, succeeds Mulder. Richard M. McAllister, general clerk in the operating department, was selected to fill Barrell's old position.

FIGHT AGAINST INFLATION

Effect of Government's Three Control Barriers

By Dr. Henry Bund

TO comprehend the price developments that are taking place today and that are in store for us in the near future, we must first have a clear picture of the strategy the government has adopted in its fight against inflation.

With the issuance by the Office of Price Administration of the General Maximum Price Regulation, or "General Max," as it is affectionately called by Washington, the former technique of slapping down individual prices that seemed to climb out of line has been thrown overboard. In its place, the OPA has erected three consecutive barriers or dams to stem the tidal wave of mounting wartime prices—one at the factory stage, the other at the wholesale, the third at the retail level.

Of the three dams, the last one is all-important; it must hold at all costs, if the President's program to stabilize cost of living is to be translated into reality. At least that is the theory. Consumer prices must not be raised and the inevitable difficulties, which increase in the cost of doing business cause, will have to be worked out at earlier stages of production and distribution. The retail dam must hold.

Price officials realize, of course, that precautions must be taken lest pent-up pressure eventually breaks this all-important bar to inflation. For this reason, locks have been provided in the two other dams, the ones at the manufacturing and wholesale levels, permitting readjustments of both producers' and distributors' prices. In the months ahead, these locks may become as vital to American business as the locks of the Panama Canal are for our military and naval position. They are designed to relieve pressure and to smooth out discrepancies caused by what has come to be known as the "squeeze."

Adjustments of the "Squeeze" by "Roll Back" will, in most instances, involve disadvantages as well as advantages. The locks may be opened somewhat, but the relief one group will derive will be offset by increased pressure on some other group in the particular industry.

"Roll-back" and "roll-forward" are two terms representing the technique to be employed which will become increasingly familiar. If a branch of the retail trade is badly pinched by the ceiling, its suppliers may have to lower prices below March levels to afford hard-pressed merchants more breathing space. Where the operating margins of wholesalers or manufacturers appear inadequate, adjustments at the other stages will be called for.

Producers of pickled sheepskins were the first to feel the effects of the "roll-back." On the basis of presentations by the tanning industry, and from OPA's own investigations, it was determined that tanners could not continue operations at the narrow margin left by rising skin costs and fixed leather prices. The result was that pickled sheepskin prices were cut by as much as 20 to 25 per cent—indicating the extent to which OPA is prepared to go to prevent a puncturing of the retail ceiling.

In another instance, the "Big Three" of the soap manufacturing industry, at the request of OPA, rescinded price increases averaging 3¼ per cent (posted in February and March of 1942) in order to relieve the position of retailers, wholesalers and jobbers who, as a rule, were selling old stocks of soap during March at pre-rise prices. The consumer's dollar which the retailer receives is the real ceiling. The wholesaler may prove that he cannot get along on the 12 cents which may happen to be his share, and may be awarded 14 cents instead; but the additional 2 cents will, for the time being at least, have to come out of the manufacturer's or the retailer's pockets, and will not be passed on to the consumer in the form of higher prices.

It is all-important to realize this definite limit imposed by the price freeze, because it is bound to affect materially our normal way of doing business. For one thing, no one in a given industry can afford to be disinterested in what happens to his suppliers or customers. Even if a manufacturer's March prices leave him a satisfactory margin, there is the possibility that they may work hardship on his distributors and, therefore, may backfire on him in the form of a "roll-back." On the other hand, where the distributor's position is firm, there may be an opportunity for a "roll-forward" effecting an upward revision of factory prices without endangering the cost to the ultimate consumer. The squeeze must be borne by the industry as a whole, embracing the entire vertical setup from original producer to retailer, and the financially strongest part will have to make the first and most far-reaching sacrifices.

Dr. Henry Bund is director of the price control division, Research Institute of America, New York, assisting in advising member business firms regarding operations and effects of new controls emanating from Washington.

We are experiencing today acute shortages of essential goods and services at a time when production has reached the highest level this country has ever known. To maintain this extraordinary rate of production or to increase it still more will require the output of *every* plant that is equipped to turn out war materials and essential civilian supplies, including high-cost and marginal producers. For a variety of reasons, production costs in most, if not all plants, are bound to rise: transportation difficulties and the use of other than the established traffic routes and facilities; in the face of a growing labor shortage, employment of less skilled and less efficient workers; the terrific strain on machinery and equipment, in view of the difficulty, if not impossibility, of obtaining adequate repairs and replacements.

These and similar factors will make maintenance of the present maximum rate of essential production extremely difficult at prevailing prices. There will develop situations in which no "roll-back" or "roll-forward" will be sufficient to absorb the strain on an industry. Under such conditions, the government is ready to step into the picture and lead the way to a large-scale cooperative effort designed to assist the weaker members carry a portion of the load imposed by the war emergency.

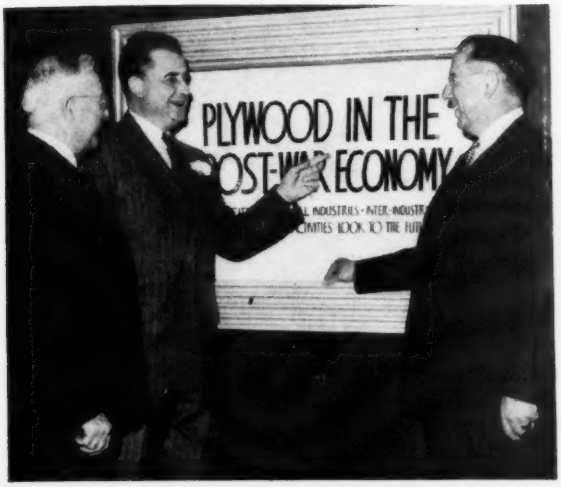
The government-sanctioned plan by which the petroleum industry is sharing the burden of tremendously increased transportation costs to east coast states and the northwest is but one instance illustrating this technique, which makes the more efficient and more advantageously situated producer contribute to help his less fortunate competitor stay in business. Equalization funds are certain to be used increasingly to absorb excessive costs of marginal producers out of cost savings realized by more efficient members of an industry.

The Last Resort

Despite all these efforts, situations are bound to arise where the consumer's dollar, no matter how much we stretch it, just won't be enough to pay for the cost of production and distribution, where a whole industry will be unable to carry on at present ceiling prices. If the products it manufactures are exclusively for military use, it is quite certain that OPA will relax price control provisions and, if necessary, perhaps exempt the commodities from price restrictions altogether—as is now the case with many assembled combatant items, such as aircraft, explosives, and tanks. But where the production is of civilian or semi-civilian character, the price administration

(Continued on Page 14)

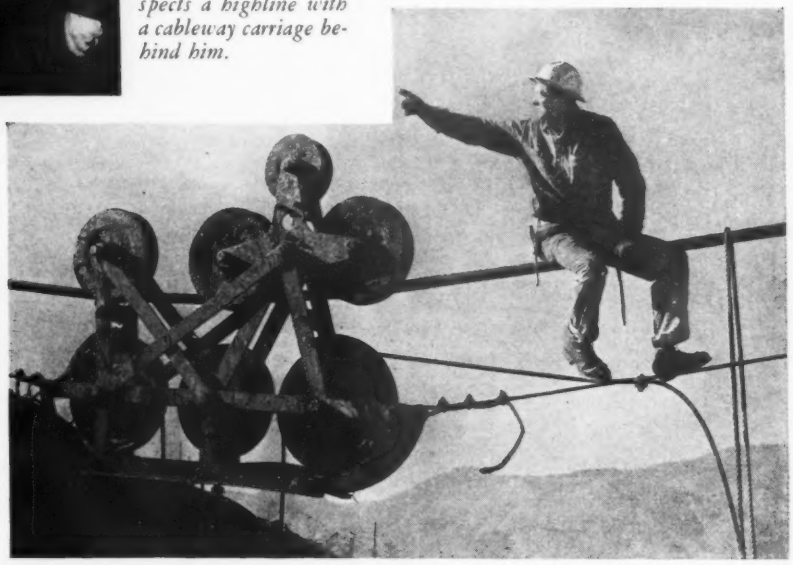
WESTERN INDUSTRY IN PICTURES



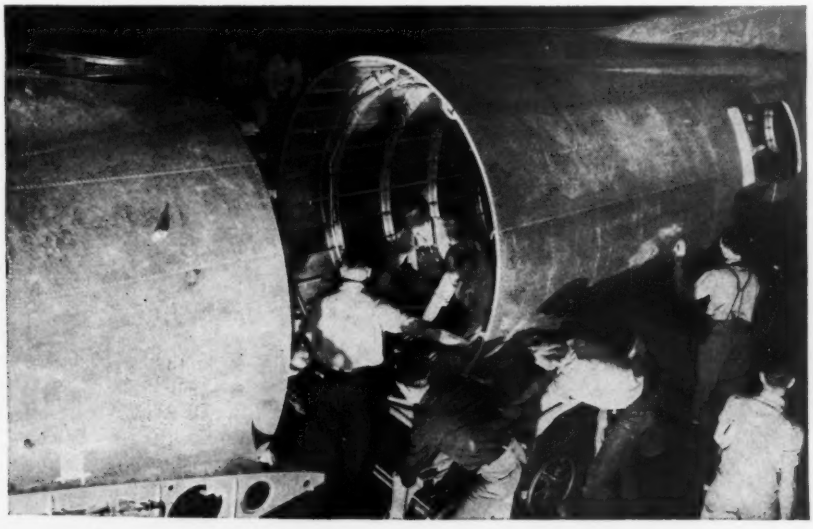
• *Douglas Fir Plywood Association officers: E. W. Daniel, retiring president; W. E. Difford, managing director; N. O. Cruver, new president.*

At right: Lumber from Northwest rolls toward factories.

Below: Gilbert Roney solves tire problems by riding a unicycle, and Harold Shoneman, rigger on Shasta Dam, inspects a highline with a cableway carriage behind him.



• *Below workmen are shown preparing to join the rear to the main fuselage section of a Boeing B17-E Flying Fortress. Production schedules are continually stepping up and output increasing.* • *Material shortages are being overcome in many plants by the use of substitutes. Lower right-hand picture shows the milling of plastic nesting block at Vega Aircraft Corporation plant. Tools made of plastics can be made far more quickly than from metal and will stand heavy pressures.*



Price Control

(Continued from Page 12)

has one more device at its disposal—outright money grants paid out of government coffers.

Despite considerable opposition in Congress, this subsidy program, at least with regard to certain cost elements, has already passed from the stage of theoretical discussion into the realm of practical realities. The first Compensatory Adjustment Regulation has been issued by the OPA. Through it, the government undertook to reimburse New York and New England dealers and users of bituminous coal for the higher costs of wartime transportation caused by a shift from water to rail, made necessary by the shortage of ships.

Undoubtedly, this is but the small beginning of a subsidy plan on a vast scale which will bring the government squarely into industry's own house as a new and all-important business partner. Despite existing controversy, it seems obvious that subsidies are unavoidable if puncturing of the retail price ceiling at many points is to be prevented. The experience of England, Canada, and many other nations confirms this.

The subsidy program, however, will not be the universal balm that some people apparently expect. Government money will not be poured out lavishly or indiscriminately. In the first place, the position which each industry occupies in the war effort will be closely scrutinized and help of this kind will be limited to those who can demonstrate that they are playing an essential part in military or vital civilian production and distribution.

Furthermore, subsidies will not be forthcoming to help an industry maintain a comfortable profit position. Before the first penny is received by the hard-pressed businessman, profit margins at the retail, wholesale, and manufacturing level will have been cut to the bone; the entire industry will have been fine-combed for savings, and all the possibilities of cost equalization will have been explored. Clear proof of need will be required before anyone will be able to get on the subsidy payroll; money grants will be a last resort.

Cost Savings

This brings us to another matter of vital significance for American business. We have developed the most elaborate and expensive merchandising apparatus on earth. Before any concessions or relief will be made available by OPA, each individual company will be required to show that it has done everything in its power to fight the "squeeze" by drastic economies of its own. The utilitarian value of the goods produced will be the primary concern and all unnecessary trimmings and promotion extras will be cast overboard in the effort to weather the stormy seas ahead.

Defrilling, standardization and simplification, which have already made their appearance in many industries, mark the new trend in both production and distribution. Free services, elaborate wrappings, return privileges, free deliveries, credit and similar features will be among the first to fall. That OPA may go still further in its effort to protect the existing price structure was forcefully suggested by its regulation governing the fall line of ladies' and children's garments, which was revised to permit the use of cheaper materials and lower quality workmanship to the extent required to offset cost increases since the 1941 season. Obviously, even quality will be sacrificed, if need be, to hold price lines at their existing levels.

The pincers of rising costs and ceiling prices, "roll-backs" and "roll-forwards," freight cost equalization and similar schemes will exert a constant heavy pressure on profits in civilian industry. They will put a premium on foresight, intelligent planning and alertness to new opportunities. Most imperatively they will make it necessary for every business operating under the price ceiling to keep informed with respect to regulations which apply to it individually to explore all possibilities of reducing costs and to know the steps which may be taken for relief when the pinch comes.

Utility Price Set

Verdict of a Federal Court jury on May 9 set a price of $7,600,000 on that portion of the Puget Sound Power & Light Company's properties operating in Thurston, Lewis and Cowlitz counties of Washington state. In long-delayed condemnation proceedings the Tri-County Public Utility District's attorneys thus got a jury appraisal in excess of two and one-half million dollars more than their offered price when the Federal Court hearing started during the first week in April.

The P.U.D.'s had asked a price of about $5,000,000 while the fair price set by the power company was $10,500,000.

Friant Nears Completion

Concrete work on the Friant Dam near Fresno has been completed. This is the fourth largest concrete structure of its kind in the world.

• *Thousands of cowl ventilators destined for installation on the hundreds of Liberty (EC-2) 10,000-ton cargo ships under construction in both east and west coast yards are rolling off the presses of Weber Showcase and Fixture Co., Los Angeles.*

Whereas the ventilators formerly were made by a combination of pressing, riveting and hammering, two presses recently completed by Weber engineers will eliminate several of the steps once necessary. One of these—largest drawing press in the world—will start in July pressing the largest size ventilators.

Farm Labor Crisis

Agricultural labor shortages in the West may have a disastrous effect on the fruit and vegetable canning output this year, because of inability to get the crops into the plants or to process them after receipt.

The situation is aggravated by the fact that the cling peach canning season, which some years ago used to stretch out over a period of 50 days, has now been narrowed down to 20 days, as the result of growers concentrating their acreage almost entirely on the early and late midsummer varieties, which ripen very close together.

When hot spells ripen the fruit very fast, peaks occur which in the last two seasons have brought 9 per cent of the entire season's tonnage into the canneries on one day. In 1940 that meant 14,000 tons received in a 24-hour period.

Crop forecasts indicate the largest tonnage of cling peaches since 1930, amounting to about 422,000 tons according to the federal-state crop reporting service, and 416,000 tons according to a grower-canner field survey. This will make about 350,000 tons of No. 1 peaches, the grade used for canning. After subtracting 50,000 tons for fruit cocktail and fruits for salad, there will be 300,000 tons left, which would make a pack of nearly 14,000,000 cases.

Canned asparagus output, which will be about 2,100,000 cases, will fall short at least 250,000 cases of the possible outturn as a result of the labor shortage.

The sugar beet crop was the first important agricultural item to suffer. At least 1,000 acres were plowed under, according to James Mussatti, and the estimated acreage available for harvest dropped 20,000 acres, or 10 per cent, of which nearly three-fourths was attributed to direct or anticipated labor shortage.

California growers were asked to plant an unlimited quantity of sugar beets, and produce 15 per cent more flaxseed, 11 per cent more milk, 10 per cent more barley, 10 per cent more eggs, 8 per cent more hogs, and 6 per cent more truck crops.

Agricultural labor needs for this season's peaks, estimated by Professor R. L. Adams of the University of California, are 98,734 in May, 125,028 in August, 141,617 in September and 159,283 in October. Figures on the potential supply are not available. About 8,000 school children will work in the orchards, fields and processing plants this season, it is expected. Most of them will be quartered in school houses and transported to their work by chartered school buses.

Canneries in the Salem, Oregon, district are reported to have done an unusually good job in meeting the situation this season by the use of school children, after having suffered severely last year for lack of help.

(*IT DOES SOUND LIKE ONE, BUT ACTUALLY IT'S THE MOST VERSATILE LUBRICANT IN THE SHOP)

Nearly every shop has some kind of a wet or hot lubrication spot that calls for a special grease. Your shop is probably no exception.

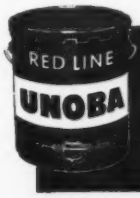
That's why we want to give you all the facts about UNOBA—Union's new grease that resists both heat and water. Here's how it works.

Most greases have either a sodium or calcium soap base. Sodium soap greases resist heat, but not water. Calcium soap greases resist water, but not heat. Unoba—a barium soap grease—resists both heat and water.

Developed after years of research by Union Oil engineers, Unoba is the ideal lubricant for Wet and Hot-Running Bearings, Conveyor Bearings, Drier Rolls, and other lubrication points where a grease must withstand both heat and water.

Try Unoba yourself! . . . First, thoroughly clean the parts to be lubricated, so that none of the old calcium or sodium soap base is left to neutralize Unoba. Then test Unoba by giving it your toughest (and we mean toughest) lubricating problem.

Your nearest Union Oil representative has it for you. Call him today and let him give you further information.



UNOBA
an industrial product of
UNION OIL CO.

SPEEDS WEST'S INDUSTRIAL GROWTH

World's Greatest Power Source Now in Operation

WATER began pouring last month over the spillway of Grand Coulee Dam, the largest man-made structure in the world, three times bigger than the largest Egyptian pyramid.

It is 550 feet high and 4,300 feet long, and its purpose is to store 10,000,000 acre feet of water in a 151-mile reservoir for the irrigation of 1,200,000 acres of dry lands, for the generation annually of 12 billion kilowatt hours of electrical energy in the largest power plant in the world, and for flood control, river regulation, navigation improvements and downstream power benefits.

At each end of the dam is a powerhouse 700 feet long and 85 feet wide, and at the west end of the dam a pumping plant 600 feet long and 70 feet wide. The power plant capacity is 2,700,000 horse-power, or 1,944,000 kilowatts, supplied by eighteen 150,000 horse-power turbines and eighteen generators, each rated at 108,000 kilovolt-amperes.

Homes will be provided for 25,000 to 40,000 families on the land in the project, and for about an equal number in towns in the irrigated areas, that is for a total of 200,000 to 400,000 people.

By controlling the flow of the Columbia River, the Grand Coulee Dam will double the firm power of plants between it and the mouth of the Snake River, and will increase by 50 per cent the firm power output of other plants below that point, including Bonneville.

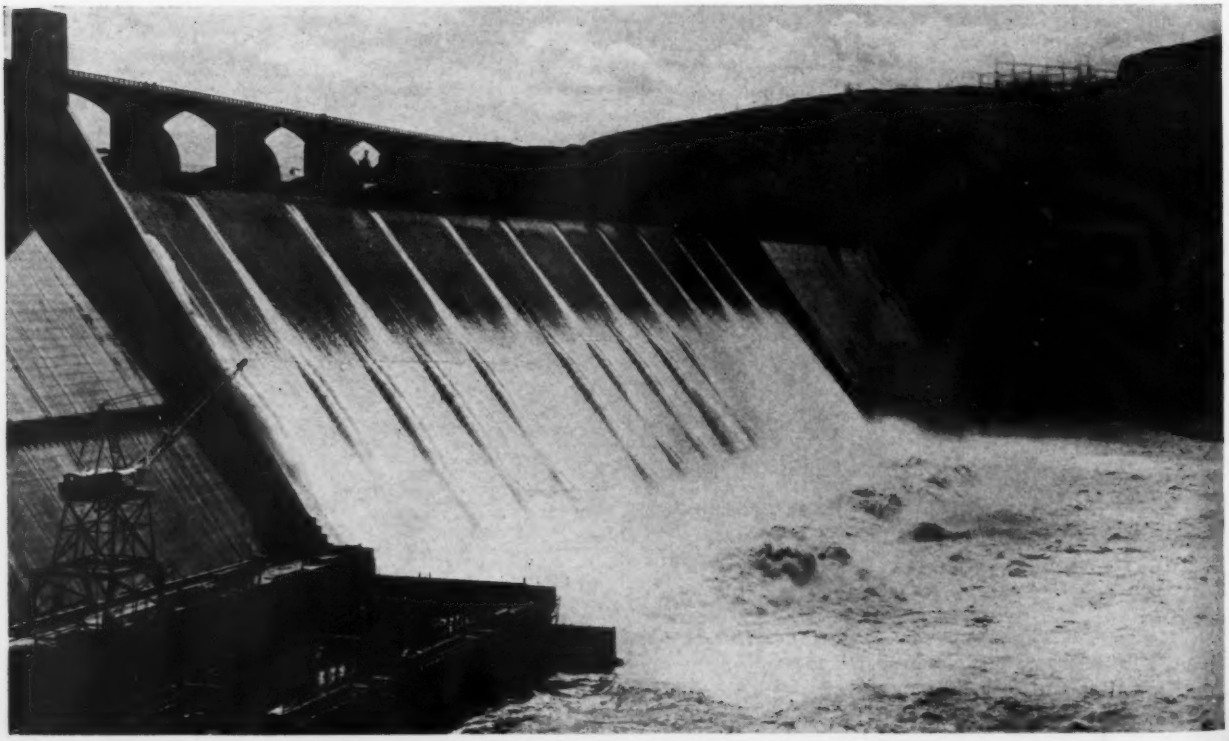
Among the eastern manufacturing corporations who already have built plants to be served by either Grand Coulee or Bonneville are the Aluminum Corporation of America, Victor Chemical Works, International Minerals & Chemical Corp., Ohio Ferro-Alloys Corp., Rustless Steel and Iron Corp., Electro-Metallurgical Co., Pennsylvania Salt Co., Reynolds Metals, Union Carbide and Carbon Corp., and Olin Corporation.

Grand Coulee is the key to the development of power on the Columbia River. Plans of the army engineers provide for 10 dams between the Canadian border and the ocean, to utilize 92 per cent of the fall of the river within this country. The Grand Coulee dam accounts for 27 per cent of the total head. The storage reservoir behind the dam will extend, when filled, to the Canadian border, and will contain about 10,000,000 acre feet of water, of which about 5,000,000 will be useful for river regulation and power generation. Two months average flow of the river would be sufficient to fill the reservoir.

Tiny robot sentries—new secret devices built into miles of high wire fences enclosing some of the nation's great war-production plants—are said to be saboteur-proof by Du Pont engineers who developed the system. The acoustic fence "overhears" birds chirping, the snip of a wire-cutter, the scrape of a shovel, even whispers, relaying these sounds to a central control room from whence a squad car rushes to the precise point of disturbance.

Many forged checks can now be detected instantly at a bank teller's window by means of an ultraviolet ray lamp developed in Westinghouse laboratories. All checks are coated with fluorescent chemicals which glow brightly in the dark when irradiated with invisible ultraviolet. Any erasure or change on the checks removes part of the chemical coating even though the alteration cannot be seen in ordinary light. Under ultraviolet the tampered part of the check shows as a dark blotch.

• *Grand Coulee Dam, in eastern Washington, is twice as high as Niagara and five city blocks wide. Its power plant capacity is nearly 50 per cent greater than Boulder Dam, and industry already has begun to take advantage of the new supply.*



ONE-FIFTH OF NATION'S TOTAL

$16,800,000,000 of War Money Poured Into West

By Arnold Kruckman

WASHINGTON, D.C.—Latest authentic figures, based on studies by WPB Statistics Division, indicate the Government has formally contracted to spend $16,800,000,000 for war purposes in the area west of the ridge of the Rockies during the period that began June, 1940, through April, 1942.

It is striking that this figure continues to run along in the same proportion to the total over-all war expenditures everywhere as the equation has represented the average percentage disbursed in the Pacific West ever since the first report was published. Overall, everywhere, the Government has legally committed itself to spend $84,000,000,000. The portion that is being spent on the west slope therefore holds steady to the established percentage of one-fifth of the gross, or 20 percent.

Geographically, in the various sections of the west slope, the money, roughly, is being spent this way: in the San Francisco district, $13,400,000,000; in the Denver area, $214,000,000; in the Alaska and off-shore area, $3,340,000,000. Generally speaking, the money is being spent for the following purposes: supplies, $10,800,000,000; facilities projects, $6,000,000,000. These broad general items are further broken down this way: aircraft, $5,600,000,000; ships, $3,500,000,000; other supplies, $2,500,000,000; industrial construction, $2,000,000,000; non-industrial construction, which includes military works, housing, etc., $3,000,000,000.

The figures provided by Stacy May's WPB Statistics Division roughly represent two-thirds of the total here reported. The WPB figures have been prepared for publication by Information Chief Barrow Lyons, with fascinating and meticulous detail. They cover the actual contracts, validated and reported. They do not include obligations not yet supported by validated contracts, nor contracts under $50,000, nor contracts on cost-plus-a-fixed-fee basis, nor contracts with escalator clauses covering wages and material prices subject to mutations. There also is considerable expenditure for housing, for highways, for reclamation, rivers, harbors, flood control, and similar non-war commitments that has a close relationship to war needs, and has been substantially stepped up by war activities. These outlays are represented by the one-third of the total here reported not furnished by the WPB Statistics Division.

One of the best-informed writers at the Nation's Capital, Arnold Kruckman, presents each month authoritative comments on political developments and their practical application to industry of the West. Any reader who wishes additional information may write to him directly, using business letterhead, at 1120 Vermont Avenue, N.W., Washington, D.C. Inquiries will be answered free of charge. You also are invited to contact him personally in Washington. Copies of pending congressional bills may also be obtained free of charge.

• **Geographical breakdown.** WPB furnishes an analysis of the disbursements geographically, which constitutes a fair index of how the total has been distributed. The San Francisco District roughly follows the outlines of the 12th Federal Reserve District. WPB furnishes a detailed breakdown by community. The WPB figures have here been reduced to approximate totals as follows:

Bellingham, Wash.	$ 2,500,000
Bremerton, Wash.	370,000,000
Los Angeles, Calif.	2,600,000,000
Portland, Ore.	381,000,000
Salt Lake City, Utah	116,000,000
San Diego, Calif.	1,251,000,000
San Francisco-Oakland	1,300,000,000
San Jose, Calif.	36,500,000
Seattle-Tacoma	1,800,000,000
Vallejo, Calif.	500,000,000
Remainder of District (apparently scattered inland and along coast)	1,350,000,000

Alaska and off the continent, $2,500,000,000. WPB attributes $200,000,000 to the Denver area, which is in the Kansas City Federal Reserve District.

To translate these figures into terms of what is ahead, bear in mind that responsible persons calculate the war will cost us $300,000,000,000 by 1944. Approximately one-third of the money expended goes for services and things not represented in this discussion. The gross to be spent nationally, in the channels we have indicated, therefore will approximately total $200,000,000,000. It is reasonable to deduce that the WPB figures suggest the Government will spend roughly the additional sum of $23,000,000,000 in the Pacific West during the next 18 months. This total will broadly follow the pattern of distribution as outlined earlier.

It is not improbable that more money may be spent in the Pacific West on industrial plants and on shipyards than will be disbursed relatively in other sections. There is business in the Pacific West for the type of pioneers like the men who have made the West Coast shipyards the miracle works of the war in this country. The golden flood should inevitably quicken industry and trade everywhere on the other side of the Rockies, and touch almost every human activity. But even the most enthusiastic planners here in Washington voluntarily suggest that it is also inevitable that some sections of the economy will be wiped out.

• **Thousands of fold-ups.** It seems incredible to contemplate, but it is one of the sardonic twists of the war cosmos that WPB officially expects somewhere between 5,000 and 8,000 manufacturing units in the Pacific West to fold up, or to be stripped practically to bare bones by the first part of next year. These concerns are the smaller firms which employ from 20 to 100 men each. There is an irreducible minimum of 24,000 such companies in all the United States which are expected to go under. They are usually thriving and prosperous businesses in normal times. Most of them have been in existence over a decade, usually well over twelve years. They will be inevitable victims of war because they depend upon critical materials as the base of their industry, or because they operate tools and machines of which there are so many that they are literally a drug on the war producing market.

Many make things which are being swept off the scene by the savage economic tornado which begins its career in full fury on August 3. The firms which make metal products were forced by Order M-126 to stop fabrication of 400 different kinds of non-essential items on June 19. They must cease completely even the assembly of such items on August 3. If these metal-using manufacturers are able to substitute gold, silver, glass, paper, wood, or other non-critical materials, they will be able to carry on. There are 40,000 such metal-working factories alone in the United States. Some, a relatively limited number, will be able to convert to some form of war work; others will be able to work with other materials.

There are other manufacturers who depend chiefly on rubber, or on other non-

(Continued on Page 18)

War Money

(Continued from Page 17)

metallic base materials that have become so scarce that there is no surplus left from war production. Some non-official, but reliable, authorities have calculated that as many as 139,000 firms will be adversely affected. In terms of annual production WPB estimates $4,000,000,000 will be wiped from the nation's economic books when the 24,000 firms are closed down. On the Pacific Slope this obviously means a cut of something between $200,000,000 and $1,300,000,000 a year. Expressed in another way, it means that from 182,000 to 320,000 workers will lose their present jobs.

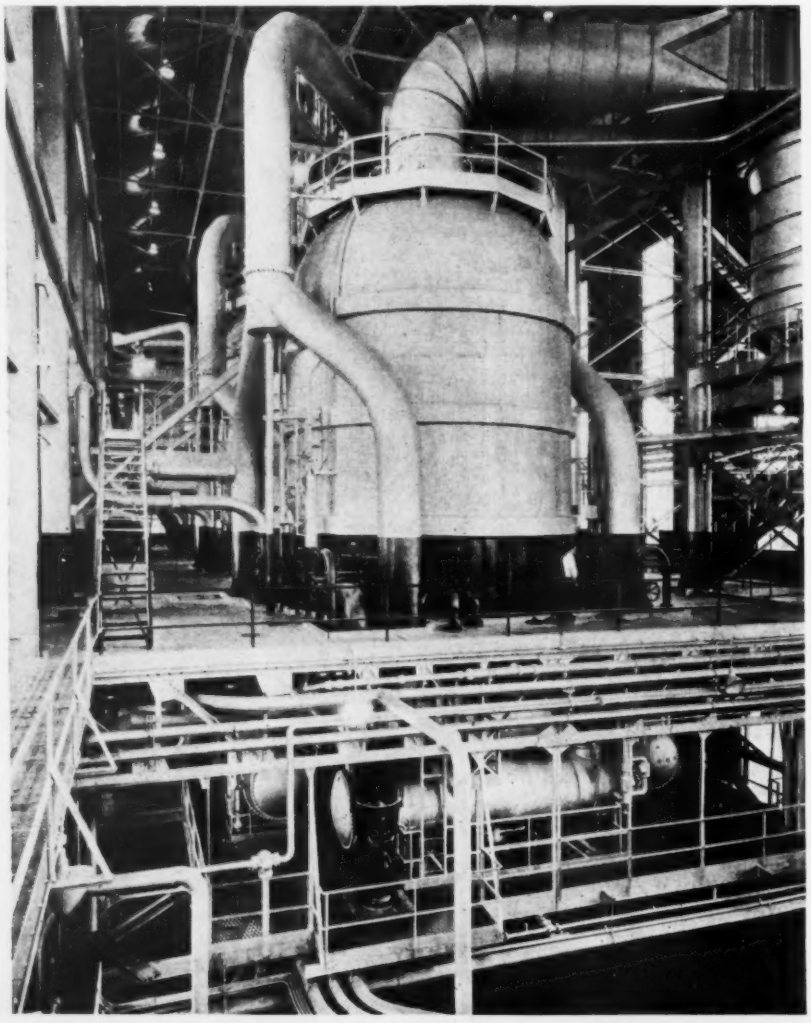
WPB looks upon this result as desirable, because these workers are urgently required in war work. Present needs, and the needs of new plants and projects that rapidly are coming into existence, demand many more workers for war production than may be supplied by the factories that are closed. It is possible, however, that workers trained in special skills for normal peacetime production, may not be easy in the skills required for some war work. They may therefore be obliged to take jobs in less skilled categories, and it is possible they may be required to work for wages paid for less skilled work. All this may be part of the scaling down of the standard of living which is regarded as an inevitable concomitant of the war effort.

• **Little relief expected.** WPB officials frankly see little relief immediately ahead for those manufacturers who are unable to convert to war work, or to essential civilian production. There are a limited number of plants whose owners may have the ingenuity to find an answer by sheer originality in adapting their facilities. WPB people encourage such efforts, but do not think even this kind of genius will solve many problems. In many instances the surplus of unadaptable machinery and tools will make conversion impossible. The inability to convert in most instances will not be due to any lack of skill or desire on the part of the manufacturer.

WPB wishes to give every help to those who seem to be up against a dead wall. There are several men in Washington who have developed a very great skill in helping the firms that do not seem to be able to find an answer. The greatest effort of the WPB men is to spread subcontracts as widely as possible. Also they try to help the troubled manufacturer to find substitute materials or substitute civilian business. Henry Ahlburg at Room 210A, 462 Indiana Ave., Washington, D.C., a specialist in the Contract Distribution Division of WPB, has been particularly successful. Ahlburg frankly advises the manufacturer who needs help to come to Washington to see him, if possible. Otherwise the manufacturer might transmit his problem by mail, or through the Contract Distribution office nearest to the manufacturer's location. But apparently the best results are obtained swiftly by those who make direct personal contact with Ahlburg.

If it is not feasible to come to Washington it may be possible to get results by negotiating with Ahlburg through some person in Washington who thoroughly understands the manufacturer's problems and resources. The point is that the man who presents the matter understandingly, and who can furnish the data that may be requested during a series of conferences, inevitably will get the best and most conclusive results. As a springboard for negotiations Ahlburg needs full information about the firm, about its set-up, its history, its products, and its plant, and an inventory of its equipment. The man who can imagine the details of a statement that would be asked by a prospective purchaser of the plant can assemble the kind of statement that Ahlburg will want.

• *One of the evaporating units at the American Potash and Chemical Corporation plant at Trona, California, in the heart of the Mojave Desert. Twelve hundred tons of refined alkali-metal salts roll out daily from this factory, located on the edge of dry, brine-crusted Searles Lake. The products are potash for fertilizer; borax for soap and technical manufacture, boric acid for medicines and ceramics; soda ash for industrial alkali; salt cake for paper, glass, dye and leather production; lithium concentrates for medicines, enamels and glazes; bromine for making high-grade gasoline.*



The California Railroad Commission has ordered all industries in the state, including those producing war materials, to be prepared to switch to auxiliary fuel supplies by next autumn.

May Establish Metal Stockpile

PLANS are taking shape for establishment of a Metals Reserve Corporation stock pile, either in San Bernardino County or on the Arizona side of the Colorado River, and the Mining Association of the Southwest is asking for a high manganese price. The base sought is $35 for 35 per cent manganese, with $1 for each per cent above that.

An appropriation to spend $200,000 in investigating Arizona asbestos deposits has been pending in Congress. Preparations for spending the fund are being made by E. D. Gardner, U. S. Bureau of Mines supervising engineer in charge of strategic minerals exploration out of Tucson headquarters.

Arizona's asbestos lies in a fan-shaped area northwest, north and northeast of Globe, mainly in the Tonto National Forest and within the Apache Indian Reservation.

The Arizona Bureau of Mines lists 30 important deposits, in the vicinity of Young, Payson, Chrysotile and Ft. Apache.

Nearly all the spinning asbestos produced in the United States has come from this one Gila County area. Georgia and Maryland are the only other asbestos-producing states and their output has been far under Arizona's.

Probably the largest mine is one owned by the Johns-Manville Co., but like others, it has only been operated intermittently. This country normally depends on Canada for asbestos.

Prospective development of sufficient iron ore in Western Nevada to warrant erection of a smelter is receiving the attention of the United States Bureau of Mines. Investigation of an extensive deposit 12 miles east of Dayton has begun under supervision of Robert H. Geehan.

Equipment has been assembled, trenching begun with a bulldozer, and diamond drilling and other deep development work will be carried on if preliminary results prove satisfactory. Estimated to contain a possible 1,500,000 tons of commercial ore, the deposit comprises a hill jutting forth from a range of mountains.

Geologists of the California Bureau of War Minerals Production report potentially rich deposits of scheelite, tungsten-bearing ore, along the western slope of the Sierra Nevada, extending from Mariposa to Kern County.

The area in which the deposits were plotted is 130 miles long and approximately eight miles wide, the geologists reported. They said at least 110 commercially valuable deposits, most of them averaging 1 per cent concentration, were indicated.

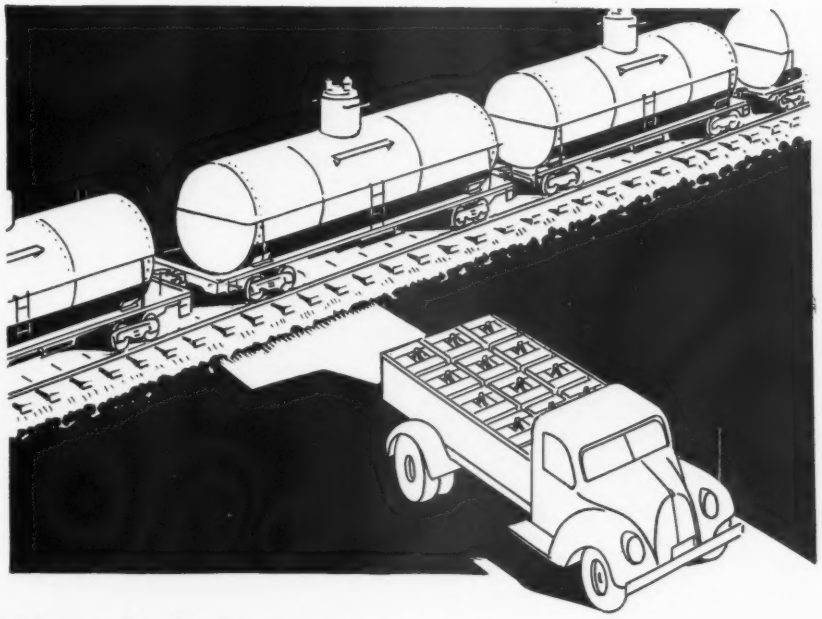
Simultaneously, the bureau announced the Federal Metals Reserve Company has increased chrome ore price schedules and revised specifications to the advantage of California miners. Truckload lots are being accepted at Yreka and Auburn.

Maps showing the distribution in California of minerals held to be strategic have been prepared by Dr. Joseph S. Hollister for the committee on latent natural resources under the direction of Dr. Robert C. Miller, director of the California Academy of Sciences.

These maps are now in the offices of the Division of Mines in the Ferry Bldg., San Francisco, where they may be consulted by any interested person.

Manufacturers Aided

Sixty-eight California manufacturers engaged in war production were assisted in obtaining $7,156,850 of financing during the month of May by the War Production Board Bureau of Finance. The loans from local banks, private sources and the Reconstruction Finance Corporation covered war production for both prime and subcontractors doing work for the Army, Navy and Maritime Commission and in uncorking bottlenecks in the major war production plants of the state.



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Awards of Merit For Initiative

A PLAN of three individual awards to workmen who devise means for more or better war production in plants with voluntary labor-management committees organized in accordance with the plan put forth by WPB has been announced by the government.

The first is the "award of individual production merit," which plant committees are authorized to grant. This may be given to any workman after the plant committee decides that his suggestion improves quality or production or conserves a critical material or in other tangible ways increases the effectiveness of the war production of the plant. Should the same worker submit additional suggestions worthy of the same award, additional seals will be attached to the award.

The second award is the "certificate of individual production merit," given by war production drive headquarters, and will be granted to those making outstanding suggestions.

War production drive headquarters will require that the suggestion first be adopted in the plant and that the labor-management committee submit a complete report of its adoption, including full facts bearing on the actual results coming from the suggestion. The suggestion will then be carefully studied and only if it is found to be outstanding will a certificate be awarded. The certificate will be signed by a WPB representative.

The third and highest award will be the "citation of individual production merit," which will be awarded to the maker of a suggestion that will have an outstanding effect on the entire war effort. The citation will be granted only after a suggestion has been found worthy of the distinction by a technical committee of WPB. Donald M. Nelson, WPB chairman, will sign the citation. A distinctive emblem in addition to a certificate will go to the originator of the idea.

* * *

A Labor-Management Committee has been set up in Plant B of the Seattle-Tacoma Shipbuilding Corporation. The War Production Board also listed the Associated Shipbuilders of Seattle among the plants reporting exceptional increases in production as a result of Labor-Management Committee operation. The Associated yard, WPB states, had completed in 20 days work on a keel that had previously taken 98 days. This great saving in man-hours was due to ideas provided by the men in the plant including a new type of jig which was developed, and to a spirit of "let's get the job done."

* * *

Wage Stabilization

First in a series of wage stabilization conferences in the aircraft industry will be held at Los Angeles, July 6, attended by representatives from the nine air frame manufacturers on the Pacific Coast and from the two principal labor organizations in the industry. Labor will be represented by the United Automobile, Aircraft, and Agricultural Implement Workers of America (CIO), and the International Association of Machinists (AFL). The War and Navy departments are also being asked to participate in the conference. Paul R. Porter, chief of the newly established Wage Stabilization Branch of the Labor Production Division, will preside at the conference.

* * *

Abandon Double Time

Labor, shipbuilders and government representatives at the Pacific Coast Ship Repair Conference, at San Francisco in June, unanimously recommended that all double time in the ship repair industry be abandoned for the duration, in favor of time and one half. The conference also established uniform premiums for all shifts, and all crafts agreed to work shifts. The conference agreed that the prevailing differential of 11.6 per cent for the repair rate in excess of the new construction rate would be continued.

* * *

Increase at Ryan

The War Labor Board has ordered a general wage increase of 10 cents an hour for employees of the Ryan Aeronautical Co., San Diego. It also ordered a maintenance of union membership clause written into the contract with the CIO United Auto Workers, which provides that all employees who, 15 days from today, are members of the union, in good standing or who thereafter become members, shall, as a condition of employment, remain members in good standing for the life of the contract.

The blanket increase raising the rates 10 cents over the rates set in the contract of January 22, 1941, is retroactive to October 15, 1941.

The board ordered a basic hiring rate of 60 cents an hour, retroactive to July, 1941, to be increased 5 cents an hour each four weeks until it reaches 75 cents an hour. Time and one-half will be paid for work over eight hours a day, or 40 hours a week, and double time will be paid for the seventh consecutive day of work, but Saturdays, Sundays and holidays will be regarded as any other day of the week. Wages will be subject to review each six months from January 22, 1942.

* * *

Post-War Charter

Labor's charter for a post-war world was outlined by Wendell Lund, director of the Labor Production Division of the War Production Board, at a conference of government and labor delegates in Los Angeles, June 17. He enumerated eleven pionts, as follows:

1. The assurance of useful and creative work throughout the productive years of a worker's life.
2. A just level of pay in return for labor, ideas or other services useful to society.
3. The guarantee of proper food, clothing, shelter and medical care.
4. Security for the aged and the sick.
5. Safeguards against industrial injury together with just recompense or security for those injured.
6. The right to live and work under a system of free enterprise without interference from private power above the law, discriminatory public authority and unbridled monopoly.
7. Freedom of movement, of speech, of conscience without fear of secret, political or private police.
8. An end to discrimination against any person or group because of race, creed, color, religion or national origin.
9. Equality before the law with economic justice part of that law.
10. The opportunity for self-improvement through free education.
11. The right to leisure and recreation.

* * *

Agreed Scale Upheld

Constitutionality of the California statutes making it unlawful to pay less than the scale agreed upon in collective bargaining has been upheld in the Alameda County Superior Court.

Section 222 of the State Labor Code prohibits the withholding of any part of a wage agreed upon in collective bargaining. The owner of an Oakland service station was charged with four counts of violation of this section and seven counts of violations of other labor laws, including failure to pay wages and violation of the day of rest law.

Minimum Wage For Women Up

THE minimum wage level for women in California manufacturing industries which has stood at $16 a week for many years, was advanced on June 29 to $18 a week for 40 hours. Former regulations of the Division of Industrial Welfare of the Department of Industrial Relations provided for a maximum 48-hour week, and the new rules will permit minimum earnings of $21.60 for 48 hours, but as most plants use the 40-hour basis, $18 will be the more prevalent scale.

Where an employee works less than 40 hours, the rate is 50c an hour regardless of reasons for the shorter work period, except in cases where the employee absents herself for personal reasons. Employers must pay 50c an hour for the hours worked in weeks in which holidays occur.

Formerly women could not be employed after 11 p.m. or before 6 a.m. except under special permit, but midnight is now the deadline. Stipulations regarding working conditions must be observed by those who obtain permits. For this "graveyard shift" a rate of 60c an hour has been set except for plants producing war materials.

The maximum number of learners has been reduced from 33 1/3 per cent to 10 per cent, and the learning period reduced to 480 hours in skilled and semi-skilled occupations, with pay of 30c an hour for the first 320 hours and 37½c for the last 160 hours. In unskilled occupations the learning period is 80 hours. Handicapped workers may be employed on special permit at a special minimum wage not less than 66 2/3 per cent of the legal minimum.

Working equipment, such as machines, tools, distinctive uniforms, etc., must be furnished, cleaned, laundered and maintained by and at the expense of the employer wherever the deduction for such service would bring the pay below the legal minimum.

Record keeping has now been made a part of the official order of the Division of Industrial Welfare, instead of a special rule, as in the past. Records must cover hours, in and out time, wages, and piece work earnings and rates.

* * *

Overtime Decision

The U. S. Supreme Court has ruled that the wage-hour law requirement of time-and-a-half pay for overtime beyond 40 hours a week means 150 per cent of an employee's regular pay rate, not 150 per cent of the act's minimum pay provisions.

Thus no matter how far a worker's regular pay exceeded the minimum, he still would be entitled to time-and-a-half for overtime.

At the same time, however, the court upheld a system by which an employer contracted to pay his employees a fixed sum each week, the amount being designed to cover overtime at the statutory time-and-a-half rate but the fixed sum to be paid for either a regular or an overtime week.

It said there was no hard-and-fast rule for determining "regular" pay.

The court found that Congress intended the Wage-Hour Act to penalize employers working their men more than 40 hours a week, observing that "reduction of hours was a part of the plan from the beginning."

This purpose had been denounced by a litigant as "square in the face of the needs of national defense."

Tire Eligibility

A union official traveling from factory to factory may be classified as eligible for recapped or retreaded tires if the local tire board finds (1) that such officer requires transportation to establishments described in the regulations and that work done at such establishments is essential to the prosecution of the war, and (2) that such officer is engaged in activities or performing services at the factory which relate to, or contribute to, their efficient operation.

It is not necessary that the applicant be employed by the factory but is sufficient that he does work there which contributes to its efficient operation.

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CALIFORNIA HAS 44% INCREASE

700,000 Mark Is Passed In Factory Employment

TOTAL employment in California's manufacturing industries passed 700,000 in May 1942, for the first time in history. The figure of 701,000 represents an increase of 19,000 over April 1942, and 221,000 more than in May 1941.

Approximately 2,222,000 persons were employed in non-agricultural establishments in the state, compared with 2,199,000 in April 1942 and 1,915,000 in May 1941.

Employment in nondurable goods industries declined slightly between April and May but remained moderately higher than last year. Reflecting increased employment in plants producing war products, the number of workers in durable goods industries rose 5 per cent between April and May 1942 to a point 79 per cent above May 1941.

Increased working hours in war plants raised average hours per week for the durable goods industries as a whole to 45.3 in May from 44.7 in the previous month and 42.0 hours in May a year ago. Firms manufacturing engines and turbines averaged 52.3 hours per week this May, aircraft 46.9 hours, structural steel 48.9 hours, shipbuilding 46.3 hours and electrical machinery 45.4 hours. These averages include employees working only part of the week as well as those who work throughout the week. All war industries reported increased employment including sizable gains in shipbuilding plants.

Sharply reduced employment in May as compared with the preceding month and with last year was indicated by factories producing knit goods, millinery, paints, tin cans, and heating and plumbing equipment.

Reflecting increased overtime in war industries and wage rate changes, average earnings in manufacturing plants rose to $43.59 per week from $41.90 in April and $33.25 in May last year. Average hourly earnings for all manufacturing industries combined reached $1.00 in May compared with 97½ cents in April and 82 cents in May 1941.

Outstanding developments among the nonmanufacturing industries included a further sharp decline in employment in metalliferous mines to almost 30 per cent below the 1940 level due to curtailment of activity in gold mines. A moderate decline in the number of wage earners in motion picture production, as well as sharp employment gains in laundering, cleaning and dyeing establishments, telephone and telegraph utilities, railroad repair shops and quarries.

Los Angeles County factories employed more wage earners in May 1942 than were employed in the entire state of California during the average month in 1939. A total of 297,000 wage earners were working in Los Angeles manufacturing industries in May compared with an average of 275,000 for the state as a whole in 1939.

Factory employment in the San Francisco industrial area reached 164,000 wage earners in May. This represents a gain of 72,000, or more than 78 per cent over May of last year and an increase of 10,000 wage earners, or approximately 6½ per cent over April 1942.

Total factory payrolls in the area increased more than 11 per cent between April and May to a level 148 per cent above May a year ago.

Reservoir of Freight Cars

An increasing reservoir of empty freight cars being built up on the Pacific Coast for movements of crops, industrial materials and goods, will take care of all peak needs this year, it was brought out at the meeting of the Pacific Coast Transportation Advisory Board in Oakland June 19.

In addition to greater efficiency on the part of the railroads themselves, an important factor has been the cooperation of shippers in loading cars heavier. In 1941 the load per car increased 2.4 tons over the average of the three preceding years.

There is still room for improvement, it was pointed out. Another tier of boxes could be put in every car of oranges moving east, and the trade unit, or amount that shippers want to receive in a car, is far below capacity in many lines of business.

Curtailment of l.c.l. freight has been another factor in the release of cars. Shippers figure they will use nearly 30,000 fewer cars for l.c.l. loading in the third quarter of 1942 than for the comparative period in 1941.

Although the third quarter car loadings estimate of the Board are only 2.6 per cent above last year, railroad officials point out that the increased tonnage per car means that carloadings are no longer the accurate index to tonnage movement that they once were. Ton miles will be doubled this year for the entire country, although carloadings will only be 30 per cent greater.

Consequently the figures below do not constitute as true an index to traffic as they should. Readers should bear this in mind when studying the figures and percentages. Expected loadings by classes are:

	1942	1941	Per Cent Change
INCREASES			
Sand rock gravel	57,188	46,194	23.8
Oils	56,126	36,540	53.6
Logs and lumber	43,100	42,641	1.1
Deciduous fruits	24,000	22,497	6.7
Oranges	23,850	23,185	2.9
Cement and plaster	16,446	15,149	8.6
Canned foods	16,442	14,260	15.3
Sugar	9,562	6,193	54.4
Sugar beets	9,203	5,825	58.0
Grain and flour	8,131	7,816	4.0
Iron and steel	7,797	7,066	10.3
Dried fruit	6,500	5,398	20.4
Livestock, wool	6,200	5,522	12.3
Fertilizer	5,809	5,281	10.0
Wine	3,824	3,639	5.1
Coal and coke	2,845	2,100	35.5
Salt	2,671	2,513	6.3
Hay and straw	1,916	1,535	24.8
Beans and peas	1,404	1,328	5.7
Packing house prod.	1,017	986	3.1
Other	220	199	10.5
DECREASES			
L.c.l. freight	63,615	94,076	32.4
Veg. and melons	32,700	34,457	5.1
Lemons	5,500	5,871	6.3
Autos, trucks, etc.	5,086	7,837	35.1
Paper	1,215	1.483	18.1
Cotton and seed prod.	1,175	2,825	18.1
Other	1,149	1,645	30.1
Grand total	414,691	440,061	2.6

Behind the 8-Ball

Very few aircraft parts companies are in a position to take advantage of the so-called "base period" experience in regard to the proposed excess profits taxes, according to Jack Frost, executive secretary of the Aircraft Parts Manufacturers Association. A good many of them were not in existence during the base period, he says, and the rest were spending their money on development with no resultant profit.

Members were advised that under present proposals, every dollar of profit over 6 per cent of capital investment would be considered excess profit in our business—with the exception of a $5,000 or maybe a $10,000 exemption. The excess profits, then, probably would be taxed at a rate of 94 per cent. This would mean that when a company of $100,000 capitalization reached a profit of $11,000, everything thereafter would be subject to 94 per cent tax. If a $1,000,000 contract then were offered, and the company made $10 on the contract, $9.40 would be paid back in tax.

A method of welding magnesium so that all-magnesium plans will be possible, is announced by Northrop Aircraft, Inc. The new process is known as the Northrop "Heliarc" welding method.

WHO WILL KEEP THEM ROLLING?

Trucking Situation Will Affect Many Operations

INDUSTRY generally seems to be only dimly aware of the great changes that will be wrought by the ODT regulation of truck transportation. The requirements of 100 per cent outgoing load and 75 per cent returning is expected by close students of the situation to force many manufacturers who have their own fleets of trucks to dispose of them.

Although this would merely mean turning their traffic over to contract and common carrier truck lines and require revision of their shipping schedules, a still greater change lies ahead if long-distance truck hauling should be eliminated.

Several months ago there were predictions that truck hauls beyond 200 miles would be eliminated, but nothing came of it, until suddenly the army announced in June that war-controlled traffic would be cut to 300 miles. This threat to the long-distance hauling that has had such great development in the Far West was promptly opposed by the Office of Defense Transportation and the American Trucking Associations, who insisted that the army hold a hearing before putting the order into effect. The hearing is set for July 1.

In the last few years truck transportation in the West has developed so rapidly that many manufacturers are using this facility almost entirely for shipments between northern and southern California, for coastwise shipments all the way from Seattle to San Diego, from Idaho and Utah into the metropolitan coast centers.

Ever since the defense program was inaugurated there has been a constant flow or airplane parts and supplies by truck northward and southward between Oregon, Washington and California, and airfields in the adjacent mountain states have been supplied by truck movement from factories in the coast states.

Other military and naval equipment has also been handled in large volume by truck because of the greater speed and flexibility of this form of transportation. If the ODT or the army should start limiting the distance for truck transportation, great changes in traffic flow may result.

Although the ODT rules requiring truck delivery service within a radius of 25 miles to be cut 25 per cent were accompanied by recommendations that pooling of facilities be developed in order to reduce the number of vehicles in use, the danger of prosecution for violation of the anti-trust laws has thrown a scare into many trade associations.

The northern California wholesale bakers, for example, worked out a plan for exchange of territories and limitation of trucking that would have cut their combined monthly mileage total of 600,000 miles well below the required 25 per cent. They abandoned the whole scheme, however, after reports that Thurman Arnold would prosecute anyone for exchange or allocation of territory unless it was shown to be in the public interest. Since a showing of public interest hangs on so many factors, the bakers felt they were up against a hopeless proposition.

Despite the belligerency of Thurman Arnold, there is food for thought in the recent statement of Joseph Eastman, director of defense transportation, that retail delivery of milk would have to be abandoned entirely within a year unless present wasteful distribution practices were eliminated.

Representatives of the motor transport division of the ODT report that industry generally is slow in realizing that the ODT's main job is to conserve rubber, and that unless an awakening comes, far more drastic regulations are in prospect.

Commercial truck lines, particularly the contract carriers, who have built their business on the special service they could give to manufacturers and wholesalers, undoubtedly will prosper considerably through the ODT orders, except the weaker ones who are forced out of business altogether. Their customers will not be able to demand the service they have been accustomed to in the past, however.

• *Truck hauls over long distances utilized by many manufacturers are threatened by an army proposal to limit movement of its purchases to 300 miles. Trucks moved 65 per cent of all freight in California in 1939.*

NEW OUTLET FOR WESTERN SILVER

Uses of Silver Alloy in Communication Circuits

AMONG the conclusions reached in research relating to ternary alloys containing silver, conducted on behalf of the American Silver Producers' Research Project, the following conclusion as to copper-tin-silver alloys is significant:

About 3 per cent of silver in wrought alloys of copper with 5 to 10 per cent of tin renders them susceptible to precipitation hardening. Such bronzes, when heat-treated, show marked increase in yield strength without significant decrease in ductility, electrical conductivity or resistance to corrosion. Moderate cold-rolling produced physical properties superior to those obtained by heat-treating 10 per cent tin bronzes containing economically reasonable proportions of tin.

In cast alloys of copper with 10 per cent tin and 3 to 5 per cent silver there is a mild response to precipitation hardening treatment, but the improvement does not justify the cost of the silver. Silver does produce grain refinement in cast bronzes, however, and restrains grain growth in wrought bronzes. The addition of silver to bronzes containing 5 to 10 per cent of tin increases their hardness and annealing temperature, effects which are particularly noticeable with 1 per cent or more of silver and for annealing periods of short duration. Other data in this regard are available through the project.

Highly developed communication systems are a modern necessity and are of special importance in war time. Few individuals not directly concerned, however, realize what an important part silver and its alloys play in communication circuits. In some years, according to a reliable authority, communication systems (presumably in this country alone) have required more than 200 million contacts.

Over one thousand pairs of contacts, it has been stated, must operate reliably to effect a dial system call between two telephone subscribers in a large city. As some eighty million telephone calls a day are made in the U.S.A., it is not surprising that telephone systems alone require an amazing number. Telegraph, teletype, radio, inter-office and other systems add to the total needed and the precious metals, silver in particular, are applied in a large proportion of such contacts.

Why silver? Because voltages are low, currents small and the pressure between contact relatively light. Corrosion has to be minimized in order that contact resistance shall be kept at a minimum. Silver is used because (1) it resists corrosion, (2) its electrical resistance is low and (3) its contact resistance can be kept within required limits.

The oxide which forms on most metals increases contact resistance greatly. But with silver corrosion is chiefly if not entirely in the form of a very thin sulfide film which has relatively low resistance. Visually, the difference may not be apparent, but electrically it is of outstanding importance. It is significant in power and lighting circuits also and again accounts for a large application of silver for contacts and contact surfaces. But with the low voltage, current and contact pressures prevailing in communication circuits, the difference between silver and other metals is a most vital consideration.

Although fine (substantially pure) silver finds much use in contacts, several alloys and sintered mixtures are used also, chiefly to give greater hardness and resistance to wear or to reduce arcing effects. Most individual contacts are small, hence the cost of the silver is a minor consideration, especially in view of the benefits secured. But the total consumption of silver is considerable, probably ranking second or third in a poundage basis, among the industrial applications of silver.

Details concerning silver in such applications will be furnished by the American Silver Producers' Research Project, who have accumulated a considerable amount of data through many years of research activity.

Effects of Silver on Machinability and Bonding Qualities

Among the many effects produced by silver on a large range of alloys containing silver, usually in quite small proportions, are those on machinability and bonding quality. These effects are among those studied by the American Silver Producers' Research Project and one report issued by the project summarizes conclusions in this regard as follows:

"Solid solutions of homogeneous structure and pure metals are machined with considerable difficulty because the machine turnings do not break off freely and tend to clog the cutting tool. The presence of a finely divided phase, such as lead in brass or sulphides in steel, contributes to improved machinability. Somewhat the same effect is observed in stainless steel and those alloys containing an excess of silver beyond the limit of solid solubility.

"By bonding quality is meant the intangible factors involved in brazing and soldering associated with fluidity, capillary flow and alloying characteristics. Silver added to lead imparts good soldering characteristics, and silver in brass makes a superior brazing alloy. A welding rod of copper containing 1 per cent of silver has superior welding characteristics also."

Hydroxymercurichlorophenol will help this season fill the breadbasket of the civilized world. It's a dust disinfectant that destroys many of the 500 known disease organisms or germs carried by seeds, attacking them the moment they are placed in the ground. Authorities urge increasing percentage of yield from available grain and vegetable seed by disinfecting with—well, the trade-mark is "Semesan."

SHIP BUILDERS
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Campaign On For More Scrap Metal

With eight new steel mill furnaces to be put in operation on the Pacific Coast between now and October 1, the Auto Graveyard Section of the Bureau of Industrial Conservation has stepped up its campaign to acquire additional scrap.

Indicative of steps being taken to this end, J. C. Austin has been named co-district manager in California, Arizona and Nevada of the Auto Graveyard Section, with offices in the Western Pacific Building, Los Angeles.

F. Monroe Alleman, liaison officer of the section, has also been sent into this area from Washington to aid in carrying out the program, which calls for a turnover of scrap in each auto graveyard every 60 days, according to W. F. Breuer, district manager of the section.

During May, Breuer announced, 26,625 tons of scrap were obtained from the auto graveyards of California, Nevada and Arizona. He declared that for the future the monthly goal for the three states had been set at 50,000 tons.

"It is essential that we get this tonnage," Alleman said, "in order to keep the increased furnace capacity working at full blast in war production."

Alleman disclosed that 7,752 tons of scrap were obtained from the auto graveyards of Washington, Oregon, Idaho and Montana during May.

California Leads In War Contracts

California continues to lead all other states in total value of prime contracts for war material and construction projects, according to the current review of economic conditions compiled by the research department of the California State Chamber of Commerce.

Total of contracts awarded for the period June 1940 through March 1942 amounted to $5,445,850,000, or 9.7 per cent of the national total. Aircraft contracts for this period totalled $2,719,144,000; shipbuilding contracts $1,382,094,000; allocation of federal funds for construction of industrial plants in California, $415,196,000; and allocations for military facilities, $581,243,000.

Trucking Revenue Shows Large Gain

One reliable index to the business trend in California is motor transportation revenue from freight and passenger carriers as reported to the State Board of Equalization, which consists mostly of for-hire trucking, exclusive of local drayage within city limits.

The gain over the first quarter of last year is almost one-third. Total transportation revenue for the first three months of 1942 was $27,690,010, as against $20,172,839 in the corresponding period of 1941, a total gain of $7,427,171. Revenues in February 1942 were $8,110,112, a slight decline from January but in March there was a sharp upturn to $11,142,652.

Bus lines and taxicab revenues are included in the total, but the bulk of the revenue, on which the State of California bases its three per cent transportation tax, is from highway common carriers and contract carriers.

Utah Coal and Iron Big Factors

Utah's iron ore and coal resources apparently are about to rise to a new and far-reaching position in the industrial and economic life of the western part of the United States, according to J. R. Mahoney, director of the Bureau of Economic and Business Research, University of Utah.

"To meet the needs of iron ore for the installed capacity of the blast furnaces at both Ironton and Geneva will require 4,000,000 tons of iron ore per year," he writes in the Utah Economic and Business Review.

"The coke for this operation will require about 3,650,000 tons of coal, an amount in excess of the entire Utah production in some recent years, and to this must be added more than 900,000 tons of the limestone.

"The great increase in blast furnace and steel capacity projected for Utah is definitely a segment of the industrial pattern that is developing in the western region of the United States, with Utah very definitely assuming an extremely important part in that pattern.

"Rapid growth of the western part of the United States, together with its potentialities, has brought us to the point where the West probably should have its own steel industry developed on a pattern that will be largely independent of the eastern and southern steel mills."

New Manager

James F. Bone has been appointed manager of the Industrial Department of the Los Angeles Chamber of Commerce. During 13 years as a domestic trade commissioner of the chamber, he traveled annually over the United States, developing an expert knowledge of the nation's markets.

No Backing Up Of Freight Cars

Export freight movement out of both Pacific and Atlantic ports is proceeding in a steady flow without the backing up of freight cars many miles into the interior as was the case at the time of the World War in 1918.

At Pacific ports the bank of freight on hand is only 5.6 days loadings, or 2800 carloads, as compared with 8 days at Atlantic and Gulf ports. Daily unloadings at Pacific Coast ports have averaged 520 cars a day, while in the east they are 2500 cars. These figures were given by W. C. Griffin, assistant manager of port facilities for the Association of American Railroads at the Pacific Coast Transportation Advisory Board meeting in Oakland June 19.

SANTA ANITA

Rapid construction of emergency housing for 22,000 persons at Santa Anita is a project of which the U. S. Engineer Corps and Stiles Clements, architect, may well be proud. With a prompt advance of credit from this Bank, this job was completed in 30 days. If you need war-time working capital remember *Security stands for speed.*

WAR LOAN DEPARTMENT

SECURITY-FIRST NATIONAL BANK

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Look Four Ways At Every Tree

"After the war we will have to look at every tree from four directions if we are to grasp the full import of America's forest industries in the life of the nation," Roderic Olzendam, Weyerhaeuser director of public relations, told the Pacific Advertising Association convention, June 23.

"Trees for Wood—We will still look to the tree, as we have looked for uncounted centuries, as a steady producer of structural materials. From this direction we continue to see wood, simply as wood. We will use it in forms that will not alter the mechanical structure just as Nature laid it down, layer by layer.

"Trees for Fibre—We will continue to look to the tree as an economical and prolific producer of cellulose fibre. From this direction we see the tree only as a mass of fibre. To get at our uses we must tear the tree apart and dissolve out the individual fibres from which we may then proceed to make many things. We will have to look twice in this field, because in some cases we will use the fibres as fibres, while in others we will first extract the fibres and then dissolve them and make other things which no longer resemble either wood or fibre.

"Trees for Chemicals—We will look at the tree from a third direction—as a vast, renewable source of chemicals. We have made a few scratches in this field, but only a few. From this direction we will be interested neither in the wood as wood, nor in the fibre, but in the constituent chemicals that Nature built into the roots, trunk, branches and leaves of the tree.

"Trees for Plastic Flow Materials—We look to the tree as a source of material capable of plastic flow. From this direction we will continue to see wood in its natural state—stiff, rigid, tough—but we will do something to it and temporarily soften it so that we may bend and twist and mold it into many desired shapes that we may bring out commercially."

The 29 pounds of pig iron which go into the manufacture of an electrically driven domestic sewing machine would make enough steel for a .30 caliber machine gun while two such sewing machines would yield enough bakelite to make the instrument panel for an army fighting plane.

• *Norris Stamping and Manufacturing Co., Los Angeles, one of the first 14 manufacturers in the country to win the navy "E" for record-making production, have now won an added star for sustained effort. Total production of this company, according to K. T. Norris, president, is 500 per cent better than last August. Each employee received a parchment certificate of merit signed by the Secretary of the Navy in recognition of his outstanding personal contribution to the effort. Here some of the 1200 employees are shown signing a pledge to "keep 'em firing" by continued increases in shells and other armaments.*

Citation For Merit

San Diego Gas & Electric Co. has been awarded the Charles A. Coffin award for exceptional accomplishment in the electrical industry by the Edison Electric Institute. It is given annually to the company achieving the greatest advancement in its operation and physical plant, and consists of a gold medal, a certificate of accomplishment and $1,000 cash for the employees' benefit fund.

With the first delivery of lumber last month, it was indicated that no time would be lost in the construction of the huge Marine aviation base by the U. S. Navy on the Bishop property southwest of the new Santa Barbara airport at Goleta. According to city officials, the base will be a multi-million dollar project which also will entail the realignment of Highway 101.

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ONE MONTGOMERY STREET

Bridges Can't Carry Heavier Log Trucks

Further relaxation of loading limits for logging trucks in Oregon, requested of Governor Sprague by Donald Nelson, WPB chairman, as a means of getting more logs to the mills, is impossible, it was agreed at a conference of state highway officials, OPA and ODT at Portland.

"We have gone all the way with the logging industry, up to the breaking point of our bridges," R. H. Baldock, chief engineer of the highway department said. "We can go no further, or the bridges will break down, we will not be able to get material for repairs and all traffic will be stopped, including the logging trucks."

Baldock explained that the highway department's policy of suspending PUC plates of violators cannot be abandoned because many operators will purposefully overload and gladly pay the light fines which are imposed by most justice courts.

The highway department, Baldock said, is much more tolerant of heavy loads than the ODT's maximum load limits. Lighter logging trucks under ODT orders are limited to approximately 50,000 pounds but the highway department allows a load of 61,400 pounds. Larger trucks with double axle drivers are allowed up to 71,000 pounds.

Under the plan worked out with the highway department, names of operators arrested for flagrant overloading will be furnished OPA and those operators will be denied new tires. OPA inspectors will be sent into the field.

Appointed To WPB Committees

Five more Southern Californians have been appointed members of newly formed WPB advisory committees. They are:

Fibre Drum Industry—John W. Harris, Pacific Steel Fiber Drums, Inc., Alhambra. Coil and Coller Industry—H. T. Jarvis, vice president and general manager, Refrigeration Engineering, Inc., Los Angeles. Heat Exchanger Industry—C. H. Latrial, vice president, Southwestern Engineering Co., Los Angeles. Domestic Water Systems and Irrigation Pump Industry — E. F. Brown, vice president, Snow Irrigation Supply Co., Los Angeles; and Donald C. McKenna, Pomona Pump Company, Pomona.

New Preference Ratings Made

Provision for rerating war orders and for applying a new series of high preference ratings is made in priorities regulation No. 12, and amendments to priorities regulations 1 and 3 issued June 26 by the Director of Industry Operations.

The new ratings are AAA, AA-1, AA-2, etc., all of which will take preference over A-1-A ratings. Heretofore the highest rating has been AA, the use of which was permitted only by special authorization of the Director of Industry Operations. This rating is now abolished and all outstanding AA ratings are automatically changed to AA-2.

The chief purpose of the rerating is to permit greater flexibility in the assignment of preference ratings to definite quantities of military and related non-military items, most of which have recently been either AA or in the A-1 series. It will permit use of top ratings for a balanced program of urgent war materials without seriously disturbing the pattern of ratings for other war and essential civilian orders.

Evaporated and rock salt production in California in 1941 was 305,111 tons, compared with 245,626 tons in 1940.

Truck Order Postponed

A second postponement, this time until July 15, has been made by the Office of Defense Transportation on its order that trucks must have 75 per cent return loads as well as 100 per cent outgoing. This has been the most difficult of all its orders to comply with, and protests by the thousands have been made against it.

The hardship will fall heaviest on the owners of trucks used for special commodities, such as mining ore, livestock, etc., who haul to points where return freight is not available.

Cargo Plane Plant

Cargo aircraft will be built on an assembly line basis after the war at the Oregon Shipbuilding Corporation shipyards at Portland.

• *The nation will continue to roll on wheels, whether there are rubber tires or not, and retreading will go on just the same, because steel wears out also. Here is a "retread" being welded on a freight car wheel.*

WESTERN

TRADE WINDS

NEWS ABOUT THOSE WHO DISTRIBUTE AND SELL INDUSTRIAL EQUIPMENT AND MATERIALS

E. F. Houghton & Co. has established a branch plant in San Francisco for the manufacture of its products. The new factory is located at Quint Street and Davidson Avenue, and affords approximately 30,000 square feet of floor space. Alterations and rebuilding have been completed and manufacturing started, the plant now being fully equipped to supply industrial lubricants, mining lubricants, textile processing oils, cutting oils, tannery oils and greases, metal working and heat treating products.

W. A. Fletcher, Western division sales manager, has moved his offices from 835 Harrison Street to the new address.

* * *

The United States Smelting Refining and Mining Co. has entered into an agreement with the Western-Knapp Engineering Co. for the latter to design, equip and construct a complete new 250 ton zinc-lead concentrator at its property in Bayard, N.M. Design work now is under way, and actual construction will be started about July 1.

* * *

The Chain Belt Co. recently announced the appointment of two new distributors of Rex Construction machinery in the West. They are: Industrial Equipment Co., 1301 59th St., Emeryville, Calif.; and Sanford Tractor & Equipment Co., 500 East Fourth St., Reno, Nev. R. W. Christofferson is general manager of Industrial Equipment Co., and Leslie M. Sanford is president of the Sanford Co.

* * *

H. C. Donaldson Co. of Los Angeles is now representing the Foundry Equipment Div. of the Whiting Corp., Harvey, Ill., in California, Arizona and Nevada. The Donaldson organization has a branch office at 116 New Montgomery St. in San Francisco.

* * *

W. H. Holcomb, formerly vice president and general manager of The Pelton Water Wheel Co., San Francisco, has been appointed assistant to the executive vice president of The Baldwin Locomotive Works in Philadelphia, Penn. He is succeeded by Ray S. Quick, who was chief engineer for Pelton.

Mr. Holcomb started with The Pelton Water Wheel Co. in December, 1919, as sales engineer. Later, he was successively manager of the pump department, sales manager, vice president and sales manager; and since June, 1939, he has been vice president and general manager.

* * *

Howard E. Burt and Son, 7 Front Street, San Francisco, announce that they are now representing the Orangeville Manufacturing Company, Orangeville, Pennsylvania, manufacturers of a complete line of two-wheel hand trucks, four-wheel floor trucks, and industrial trailers in Northern California. The company also represents Lewis-Shepard Sales Corporation, Conco Engineering Works, All-Steel Equipment Company, Derby Sealers, Inc., and American Pulley Company.

* * *

Robert C. Wilkin has been appointed Pacific Coast manager for the Phelps Dodge Copper Products Corp. He will make his headquarters in Los Angeles. Prior to his West Coast appointment, Wilkin was sales manager of building wires for the Habirshaw Cable and Wire Division of Phelps Dodge Copper Products Corp.

* * *

Timber Engineering Co., Washington, D.C., has opened a branch in Portland, Ore., with offices located in the Yeon Building. Alden K. Smith, formerly assistant technical director of the National Lumber Manufacturers Association of which the Timber Engineering Co. is a subsidiary, is in charge of the Portland office. Smith previously was associated with Western Timber Structures, Inc., and Timber Engineering Co. of California, both of San Francisco.

* * *

Moore Machinery Co., 1699 Van Ness Ave., San Francisco, Calif., will represent the Whiting Corp. of Harvey, Ill., in California, Arizona and Nevada. They will handle the application and sale of Whiting overhead traveling cranes and hoists, rotary shears and stamping trimmers, along with various types of transportation shop equipment.

New Methods

A relatively new process for the preparation of steel surfaces for painting is flame-priming. This is a development of the oxy-acetylene industry and a blowpipe is used equipped with a special head. The head resembles an ordinary floor brush with handle which is moved slowly over the surface to be painted; the flame comes through a series of small openings on the bottom. When these flames are applied to the surface to be treated, adhering rust and scale expand and pop off, leaving the metal underneath relatively unaffected and warm and dry for the priming coat.

The ease and economy of applying flame-priming and the resulting high quality of the treated surfaces are such that the process is being used more and more on all types of structural steelwork, storage tanks, dams, locks, piling, railroad cars, ships, steel work on subways, airplane hangars and pipelines. Bakelite Review, April.

* * *

Plastics in molded form are generally considered rigid products. A new group of thermoplastic molding compounds has been developed, almost rubber-like and having varying degrees of flexibility. The materials should greatly broaden the field of molding plastics. The plastic is already being used for production of small insulators which are stretched over exposed electric wire terminals in aircraft, safety goggle cups, gaskets and lens rings for industrial flashlights. Developed and produced by the plastics division of Union Carbide and Chemical Corp.

* * *

High frequency radio waves sent through ordinary power lines may soon operate electric substations and shunt power by remote control from one city to another in wartime emergencies. Sensitive new relays developed by Westinghouse can pick up the radio impulses at robot substations miles from the central control board. The relays are then able to start a whole series of operations automatically from throwing switches to building up additional steam power.

CALENDAR OF EVENTS

July 6-8—American Collectors Association, regional conference, Denver, Colo.

July 17-19—West Coast Mineral Society Display at Fullerton, Calif.

July—Northwest Furniture Manufacturers Assn., Seattle, Wash.

July—Retail Furniture Dealers of Oregon, Multnomah Hotel, Portland, Ore.

THE WEST ON ITS WAY

New Shipyard Gets Under Way

Ship construction was started last month in the half-completed Swan Island shipyard of the Kaiser Co., Inc., in Portland, Ore., two weeks ahead of schedule. In the new yard's plate shop, steel sheets were welded together into the first keel plate to be fabricated in the $17,000,000 shipyard. Facilities for the Swan Island plant are more than half completed. As ship construction increases, employment in the yard is expected to reach 30,000 persons.

The Nelson Specialty Welding Equipment Corp. will move from Vallejo to a new factory now under construction on San Leandro Blvd., corner of Peralta Ave., in San Leandro, Calif. Ted Nelson is the owner. The investment will be more than $100,000.

A huge chemical warfare plant for Denver, Colorado, has been authorized by the War Department. The site is to cover several thousand acres, and the estimated cost is approximately $14,000,000. It was not disclosed exactly what would be manufactured, but it will be such products as poison gas, gas shells or flame-throwing apparatus.

Two defense plants located in Torrance, Calif., are planning to expand. The Rubbercraft Corp., using the Du Pont Neoprene process to make synthetic rubber airplane parts, will build a $12,500 steel frame factory addition to its plant at 2012 Border Ave. The Doak Aircraft Corp. are building a $3,000 addition to their office at 2321. It is expected that this is only a prelude to a large expansion program.

Work now is under way on a $35,000,000 naval supply depot at Clearfield, Utah. Practically all types of naval supplies will be stocked here for immediate reinforcement of naval units on the coast. When completed, a personnel of 1,500 people will be maintained.

Construction of a $100,000 creosoting plant is under way in Stockton, Calif., on West Washington St. along Mormon Channel at Pershing Ave. The company will engage in general custom lumber creosoting, but their initial operations will be devoted chiefly to treating pilings and railroad ties. According to Henry Ohm, Stockton engineer and port director, who is supervising the erection, facilities included will be extensive railroad trackage, three creosoting boilers, pumping and compressing equipment, a machine shop, several huge tanks for the storage of creosote and oils, and an office building.

The Defense Plant Corp. will construct a $12,000,000 aluminum plant one mile southeast of Riverbank, Calif. They are purchasing 320 acres of land, and expect to acquire an additional 120 acres. Almost 1,000 men will be employed in construction of the plant; and when the plant is completed, the personnel is expected to run about 500 men.

Word comes from E. G. Cahill, San Francisco utilities manager, that Hetch Hetchy power will be made available to the company.

The Story Gawley Co., makers of propellers, are being financed by the Defense Plant Corp. for a new $88,400 building to be located in Burbank, Calif. The firm will continue operation of their Glendale plant.

A 2,000-unit war apartment center, largest single project yet allocated in the Portland, Ore., area, is expected to alleviate somewhat the housing situation confronting Vancouver, Wash., whose city officials are studying plans for the possible erection of 13,500 houses along with dormitories to accommodate between 4,000 and 5,000 men.

Modesto, Calif., boasts the acquisition of several new industries. Sunset Nut Co. and the S. & W. Co. will crack, grade and package almonds and walnuts. The Flotill Products Co. will pack a wide variety of fruits and vegetables. The Stanislaus County Canning Co. will devote their facilities to canning tomatoes.

Harold Raymond, automobile dealer, has opened a machine shop on Laurel St., in Compton, Calif., with 100 men on the payroll to turn out machine supplies. The shop will be operated on a 24-hour basis, seven days a week.

The Wilson and Bennett Mfg. Co. will locate on three acres of land in Richmond, Calif., facing Florida Avenue near Twenty-fifth St. The company manufactures metals and metal products, specializing in steel drums for oil companies. It is expected that employment will be given to 100 persons.

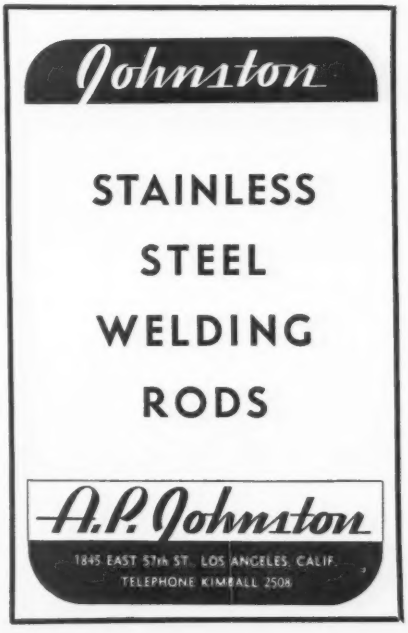
A $7,000,000 naval blimp base will be constructed at Tillamook, Ore., to provide air patrol protection for the Pacific Northwest. When completed, the base will be manned by a force of 1500 men, and will occupy between 1,000 and 1,800 acres of land.

Forced out of Port Hueneme, Calif., by a navy project, the Oxnard Canners, Inc., operated by S. A. Ferrante, are locating in Monterey's "Cannery Row." Investment in the new plant was estimated at $50,000 for the cannery building; $25,000 for the warehouse; and $150,000 for the machinery which will be taken from the old plant. However, it is expected that another $50,000 worth of equipment will have to be purchased.

Capacity of the new plant will be from 5,000 to 6,000 cases of sardines per day. Between 250 and 300 persons will be employed.

The Portland Oxygen Co. last month moved to new $125,000 quarters located at 2720 N. Y. Yeon Ave., Portland, Ore. The new building provides 50 per cent more space for warehousing and manufacturing, and the new machinery is expected to step up the company's productive capacity. M. A. Metzelaar, the manager, has been with the company since they first came to Portland three years ago.

The Mohawk Refining Co. of Bakersfield, Calif., have received a loan of $2,500,000 from the War Production Board's contract distribution branch to make improvements in their plant. Heretofore, they have been producing 91-octane gasoline, and they intend to convert machinery so they can produce 100-octane aviation gasoline.



Synthetic vs. Natural

Synthetic rubbers are superior to natural rubber in resistance to the following actions, according to J. W. Schade, director of research for the B. F. Goodrich Co.: Swelling and deterioration in contact with oils, organic solvents and water; cracking in sunlight; deterioration by heat; powerful oxidizing agents; diffusion of gases. Natural rubber still exhibits superiority to all the synthetics now available in elasticity and rebound, low heat generation through hysteresis, extensibility, resistance to stiffening at low temperature.

He discourages the practice of some purchasers of rubber goods in specifying certain features of construction or composition which they believe will insure the desired qualities. Some have drawn specifications designating that the compound shall be of a particular synthetic rubber.

This practice prevents the manufacturer from utilizing any other material, he states, even though it may furnish to the consumer goods of better quality or lower cost, or both. Improvement of quality may be largely dependent on the processing qualities of the synthetics, a feature about which the consumer usually has no information. The practice also, in his opinion, hinders the development of new synthetics by reducing the amount which otherwise might be used.

A California oil production quota of 739,500 barrels per day for July has been established by Coordinator Ickes, of which 40,100 barrels will be reserved for natural gasoline and condensate production, leaving a net crude oil allocation of 699,400 barrels per day. In June, total allocation was 691,900 barrels per day and net crude allocation was 653,000 barrels per day.

Well Cleaned Up

The smallest carryover of canned fruits in recent years is shown by the June 1 inventory reports of the Canners League of California. There were less than 2,200,000 cases on hand, and less than 1,200,000 cases unsold. Stocks of tomatoes and tomato products were also down, about 45 per cent of last year.

More than 24,600,000 cases of fruit were sold in the last season and nearly 24,800,000 cases shipped. Under war conditions the formerly insurmountable problem of getting out from under carryovers has disappeared, and new and equally difficult tasks face the canners, those of producing enough to satisfy government and civilian market demands and of breaking even under advancing costs.

OPPORTUNITY SECTION . . .

Priorities regulations have made it practically impossible to secure new machinery for industrial operations unless a plant is doing 100 per cent work on war projects. Even then, long delays are in prospect. The government is urging full use of existing machinery. Listed here are "machinery opportunities" immediately available here on the Pacific Coast. Recently, used machine tools were made subject to priorities, but this does not apply to other classifications of machinery.

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1—1200 A-600 Volt 3 pole ITE Air Breaker
1 —800 A-250 Volt 3 pole West. Air Breaker
1— 500 A-600 Volt 3 pole G.E. FKS Oil Breaker
2— 300 A-2500 V. 3 pole G.E. FK20 Oil Breaker
2— 300 A-2500 V. 3 pole West. F10 Oil Breaker
1— 200 A-550 V. 3 pole West. F10 Oil Breaker
3— 100 A-2500 V. 3 pole G.E. FK20 Oil Breaker
3— 60 A-2500 V. 3 pole G.E. FK20 Oil Breaker

MOTOR GENERATOR SETS

1—720 A-110 Volt G.E. with 150 HP Motor
1—600 A-110 Volt West. with 100 HP Motor
1— 30 KW 110 Volt West. with 45 HP Motor
1— 16 KW 220 Volt West. with 25 HP Motor
1—5.25 KW 110 Volt West. with 8 HP Motor

SLIP RING MOTOR

2—1½ HP-1200 RPM Type MT GE
3—3 HP-1700 RPM-Type CW West.
1—7½ HP-1200 RPM-Type CW West.
1—22 HP-1200 RPM-Type FRVI 115
1—30 HP- 900 RPM-Type FRVI 115
1—50 HP- 900 RPM-Type MT GE
1—75 HP- 900 RPM-Type HV FM

DC MOTORS

3—1½ HP 115 Volt 1750 RPM Shunt wound
7—2 HP 115 Volt 1750 RPM Shunt wound

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Single Phase, 50 or 60 Cycle 2200 to 110/220 Volts

3—1 K. V. A. Westinghouse
3—1½ K. V. A. Westinghouse
2—2 K. V. A. Westinghouse
4—3 K. V. A. Westinghouse
4—5 K. V. A. Westinghouse
3—10 K. V. A. General Electric

Single Phase, 50 or 60 Cycle 2200 to 440/220 Volts

2—5 K. V. A. Westinghouse
1—7½ K. V. A. Westinghouse
1—15 K. V. A. Westinghouse
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3—37½ K. V. A. General Electric
3—75 K. V. A. General Electric

Single Phase, 50 or 60 Cycle 440 to 220/110 Volts

4—1½ K. V. A. Westinghouse
8—3 K. V. A. Westinghouse
12—5 K. V. A. Westinghouse
4—7½ K. V. A. Westinghouse
3—10 K. V. A. Westinghouse
1—37½ K. V. A. Westinghouse

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MACHINERY SALE

MOTORS

1—260 H.P. Synchronous G.E. 225 RPM, 2200 volts, 210 KVA.
2—250 H.P. Westinghouse, Type CS, 290 RPM, 2200 volts.
1—200 H.P. G.E. Type I, 600 RPM, 440 volts.
1—200 H.P., G.E. 1800 RPM, 440 volt motor.
1—150 H.P. Westinghouse, Type CS, 1800 RPM, 440 volts.
1—150 H.P. Type B.F.M. 720 RPM, 440 volts.
1—150 H.P. Westinghouse, Type CS, 900 RPM, 2200 volts.
1—150 H.P. G.E. Type I, 720 RPM, 440 volts.
1—100 H.P., Slip Ring, G.E., 720 RPM, 440 volts.
1— 75 H.P. Crocker Wheeler, 900 RPM, 440 volts.
1—62½-Ft. 25½-inch Double Leather Belt.
1— 50 H.P. Westinghouse, 900 RPM, 440 volts.
1— 50 H.P. Vertical Fairbanks Morse, 1200 RPM, 220 volts, solid shaft.
1—35 H.P. Crocker Wheeler, 1200 RPM, 220 volts.

GENERATORS, BLOWERS, WATER PUMPS

1—1500 Watt, Direct Current, 110 volt, Kohler automatic light plant.
1—300 H.P. Triumph Water Wheel with governor, 50 ft. head.
1—200 K.W. Westinghouse A.C. Generator, 900 RPM, 440 volts, 3 phase.
1—No. 70 ILG Blower, 17,430 CFM, direct to 6 H.P. 340 RPM, 3 phase motor.
3— 75 KVA Transformers, Wagner Type HE, 6600 to 220/440/ volts, 60 cycle.
2— 75 KVA Transformers, G.E. Type H, 6600 to 120/240/480 volts, 60 cycle.
1—60 H.P. Byron Jackson Turbine pump, 1200 GPM at 140 ft. head.
1— 50 H.P. Single Drum Mine Hoist.
1— 20-inch Krogh Split Case Pump, 11,000 GPM at 26-ft. head.
1—5 KVA, 110/220 volt Alternating Current Kohler automatic light plant.

RELIABLE ELECTRIC WORKS

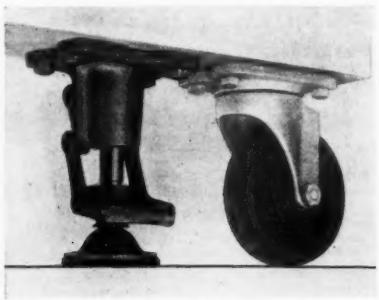
1831 Q STREET SACRAMENTO, CALIF.

THE SHOWCASE

Do a BETTER JOB with NEW EQUIPMENT

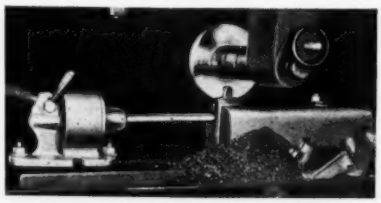
For more complete information concerning any of the products listed in these columns, write to Western Industry, 503 Market Street, San Francisco, and we shall see that the material is forwarded to you. Descriptions of the products and claims made are those of the manufacturer.

• FLOOR TRUCK LOCK—A practical device for making a truck, dolly or table stay put. Designed to be applied underneath the truck, and at the same time easily accessible. Springs give a constant and predetermined locking pressure as well as a range of action through which the locking



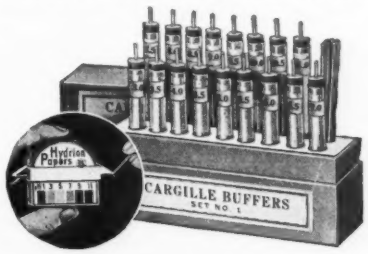
pressure is effective. The steel cup mounting of the brake shoe is not held rigid, but has a flexible joint so the locking surface of the brake shoe is in flat contact with floor surface, even where floors are not level. Descriptive folder available from The Bassick Co., Bridgeport, Conn.

• AIR CLAMP—Adapted for use on any drill press having a cylindrical column, and is attached by means of a divided collar which clamps in any desired position.



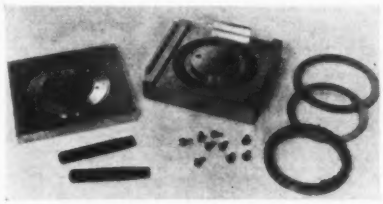
Operated by a two-way valve on the upper left side of the working head. Can be set for various operations with instant ease. Drilling-jigs can be reduced to the simplest forms and built-in clamps and holddowns may be eliminated. Mead Specialties Co., 15 So. Market St., Chicago, Ill.

• BUFFER SET—Used to make solutions of known pH to bring out on hydrion pH test paper the characteristic color for each half unit from pH3 to pH11. Each vial contains one buffer tablet which is to be dissolved in water sufficient to fill the vial to the top of the label. Color comparisons may best be made by natural daylight.



Designed for control tests in the plant by unskilled workmen, as well as for quick, preliminary tests in laboratories where more elaborate pH apparatus is available. R. P. Cargille, 118 Liberty St., New York.

• INTERCHANGEABLE DIE—Does a precision numbering job on aluminum and locates the markings exactly at the rate of approximately 240 pieces per hour and, according to the manufacturer, represents a 100 per cent increase in production over engraving previously used. The interchangeable type die provides for replacing single characters or resetting all characters with ease and speed. Assembled in a hy-

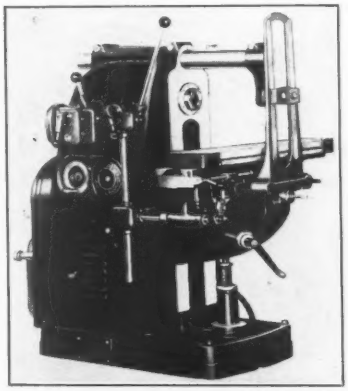


draulic press for clean and uniform impressions without waste of expensive work pieces. Wm. A. Force & Co., Inc., 216 Nichols Ave., Brooklyn, New York.

• FIRE EXTINGUISHER — A Magout powder to extinguish magnesium fires. Smothers fires caused by magnesium shavings in machine shops or by incendiary bombs. A non-absorbent, finely pulverized dry powder, safe to handle and easy to use. Pulmosan Safety Equipment Corp., 176 Johnson St., Brooklyn, N. Y.

• BLACKOUT COATINGS — One, for the inside of windows, will hold glass splinters together, and may be applied with a brush. Washes off with water and a cloth. Another may be sprayed or brushed on the outside of windows, forming a dense, flat black finish. Claimed that it will not cause windows to crack or split under the heat of the sun's rays. John A. Cairns & Co., 45 East 17th St., New York, N. Y.

• MILLING MACHINE—Especially designed for rapid production of small parts such as those used in airplane, automotive and other relative forms of manufacturing, the application of the micro-speed drive unit gives a very flexible range of speeds which can be readily selected for any class of material or cutting tools. The column and base are cast in a one-piece close-grained casting of suitable proportions to give the necessary rigidity under heavy load. The motor is built integral with the



main drive unit. The control is through the selector dial hand wheel within easy reach of the operator at all times. The spindle is driven through multiple V-belts. Simmons Machine Tool Corp., Albany, N.Y.

• LIGHTING UNIT—Plastic unit with a steel top plate and plastic diffuser. The product is known as PlastiLux, and can be used for installation in continuous lines or for individual units to be mounted either directly on the ceiling or suspended with hangers. The outer surface of the top steel

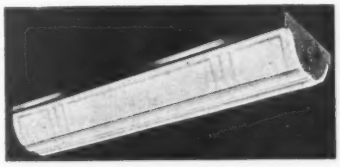


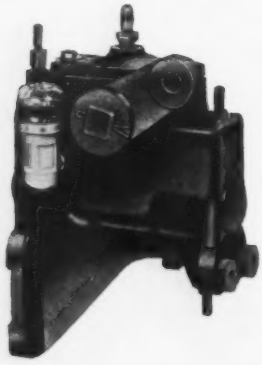
plate acts as a reflecting surface and has a Fluracite (a tough, white synthetic material) finish for maximum efficiency. Curtis Lighting, Inc., 6135 W. 65th St., Chicago, Illinois.

• SPLIT CORE TRANSFORMER—For testing power circuits; eliminates any necessity of opening the circuit in question. It is only necessary to connect the

instrument to the transformer's secondary terminals and close its separable core around the circuit's cable to effect a reading. Accuracy is practically independent of the tightness of closing the magnetic core. R. B. Annis Co., 1101 No. Delaware St., Indianapolis, Ind.

* * *

• AUTOMATIC OILER — To prevent waste of large quantities of oil, cleaning and decorating expense, and to eliminate fire hazards, old-fashioned oil cups can be replaced with visible automatic oilers. This controlled method of oiling supplies only the correct amount of oil at the right time,



according to the manufacturer, and installations can be made quickly, with little cost. No attention is required except to keep a supply of oil in the reservoir. Trico Fuse Mfg. Co., 2950 No. Fifth St., Milwaukee, Mis.

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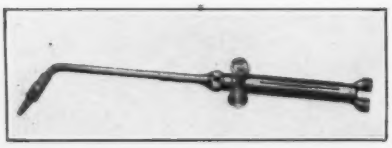


• WELDING TORCH — Measures 13 inches in length, weighs approximately three-fourths of a pound, has a replaceable tip nut and, according to the manufacturer, it is especially suitable for sheet metal and aircraft welding work. Welding Acetylene Co., 635 Bagley Ave., Detroit, Mich.

• PIPE BENDING PRESS—200-ton hydraulic pipe bending press through production experience shows that bends can be made cold, thus avoiding the necessity of heating the pipe, eliminating distortion usually resulting from cooling. Baldwin Southwark Div., The Baldwin Locomotive Works, Philadelphia, Penn.

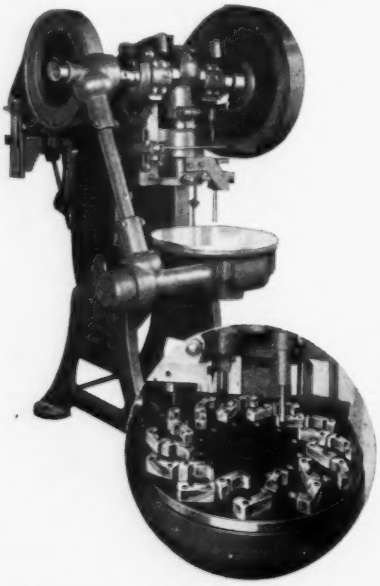
* * *

• WORK BENCH—This heavy duty, steel work bench has been improved and given a more diversified use by the addition of several new accessories. The basic steel bench may be equipped with single drawer, two or three shift drawer units for multiple shift operations, half depth shelf, full

depth shelf, back and end stops, foot rest, or full length bench riser. A 40-page catalog, No. 331, is available. Lyon Metal Products, Inc., 3127 Clark Street, Aurora, Illinois.

* * *

• DIAL FEED PRESS—Positive indexing and locking mechanism of the dial feed permits unusually high speed with accuracy and safety. All moving parts are enclosed, except the dial plate itself. Indexing is obtained by a cam and gear arrangement in connection with the crankshaft. Can be adapted to handle a variety of secondary operations. The simple design and



positive action of the dial feed permit a wide range of tooling for many jobs. Bulletin obtainable from the Federal Press Co., Elkhart, Ind.

BUSINESS BOOKS

Plant Production Control, by Charles A. Koepke. A breakdown of production control into its several functions. Each function is treated separately, yet coordinated with the others to show how control of production is obtained. Deals with the maximum production of goods with the minimum of confusion and expense. Does not advocate any one system of operation, but attempts to resolve the problems into the functions which are necessary for controlling production in most any situation. *Price, $4.00. Published by John Wiley & Sons, Inc., 440 Fourth Ave., New York.*

* * *

The Dynamics of Industrial Democracy, by Clinton S. Golden and Harold J. Ruttenberg. A timely pronouncement upon the new role of labor. A wholly novel and unprecedented statement of numerous instances of effective union-management collaboration for the purpose of increasing production in which the union has been largely responsible, as well as of the policies which control the CIO. Gives in detail the variety of constructive measures used under conditions of collective bargaining to improve the whole tone and procedure of industrial relations, and attempts to dispel the notion that the only interest of organized labor is in a fight for a "division of the spoils." This book is the first systematic account of the reasons why organized labor believes it should have a more responsible role in the shaping of policy regarding unrestricted wartime production. *Price, $3.00. Published by Harper & Brothers, 49 East 33rd St., New York.*

* * *

North America—Wheel of the Future, by Hawthorne Daniel. An inspiring and well-supported prophecy of the near future of the English-speaking peoples. The basis of the author's vision is that the North American continent is the new fulcrum upon which trade and politics must rest for an indefinite period. The British Isles, chiefly, are of artificial importance now—Canada is the true center of the British Empire and the Pacific is the Sea of the future. *Price, $2.75. Published by Charles Scribner's Sons, 597 Fifth Ave., New York.*

* * *

How to Run a Lathe. Contains the latest information on the operation and care of metal working lathes. The lathe units, grinding cutter bits, making accurate measurements, taper turning, boring, drilling, cutting screw threads, reference tables are among the subjects covered. It is widely used as a shop text in schools and apprentice training courses. *Price, 25 cents. Published by South Bend Lathe Works, Dept. W2, South Bend, Ind.*

YOURS FOR THE ASKING

1079

• SLOT CLEANER—A new, improved handy machine tool slot cleaner for removing chips and other foreign material in the average planer milling machine and other machine tool slots. Has both a small and large cleaner which will take care of a large percentage of both the small and large planer slots. Made from flat steel and finished to prevent rusting. Approximately six inches long. Address request on company letterhead to Dayton Rogers Mfg. Co., 2830 So. Thirteenth Ave., Minneapolis, Minn.

1080

• PEDESTAL WELDER — A bulletin, No. 501, describing the design and operating features of the Standard Pedestal Welder. Embodies a number of illustrations showing how, through the application of special fixtures, specialized spot welding operations may be performed on this standard pedestal welder. Progressive Welder Co., 579 East Outer Dr., Detroit, Mich.

1081

• RESINOID WHEEL—Shock resistant, resilient, light in weight, strong and efficient. Bulletin No. 53-B1 explains the advantages of this wheel and lists specifications. Several typical installations are cited. The Rapids-Standard Co., 535 Bond Ave., N.W., Grand Rapids, Mich.

1082

• PLANT EFFICIENCY—A booklet entitled "Plant Efficiency" prepared for smaller war plants or for plants getting into war production with the thought that a study of efficiency procedures will increase production. Chapters in the booklet are: "Good Lighting;" "Cutting Down Accidents;" "Longer Life for Cutting Tools;" "Getting the Most Out of Machine Tools;" "Production Lines Geared for War;" "Meeting Government Standards;" "Training Workers Quickly;" "Swing Shifts;" "Keeping Track of Orders, Production and Materials;" "Plant Protection;" "Pooling Facilities;" "A Word on Priorities;" and "Getting into War Work." Division of Information, Office for Emergency Management, 1355 Market St., San Francisco, Calif.

1083

• LIGHTING—A new lighting manual to meet the need for up-to-minute data on the use of lighting as a production tool. Designed to provide executives, plant men and architects with the latest information on the best methods of using lighting economically and efficiently as part of the production drive. The main section is devoted to the solution of the 21 lighting problems most commonly encountered in plants coverting to war production, written in non-technical language and illustrated by diagrams and layouts. In addition, these specifications show how to analyze the seeing task and to determine the amount of light and the type of lighting which is needed for more efficient sight on the part of employees. Included is a summary on how to get the most out of the present lighting system and how to conserve lamp life and electric power. Benjamin Electric Mfg. Co., Des Plaines, Ill.

Write to WESTERN INDUSTRY, 503 Market Street, San Francisco, for copies of this material. This data may help you to do a better job.

1084

• STEEL STAMPS—A 15-page supplement to Catalog No. 146 stresses the importance of safe stamping by use of proper hammer and stamp and accurate blows. Various types of stamps are shown along with specifications and descriptions. Jas. H. Matthews & Co., 2942 Forbes St., Pittsburgh, Penn.

1085

• CLEANING FLOORS — Bulletin No. 62 entitled "The Cleaning of Industrial Floors" was written not only from the viewpoint of cleaning floors for personnel safety by the elimination of greasy, slippery floors, but for cleaning them for longer floor life as well. It covers the cleaning of practically every type of flooring material used in all types of buildings, from industrial plants to hotels and public buildings, and provides the one in charge of floor maintenance with a guide to the selection of the proper type of cleaning material best suited to his floors. Magnus Chemical Co., Inc., Garwood, N. J.

1086

• GEAR SHAPING—A 12-page bulletin covering the shaping of involute gears of all types. Included in the booklet is data under the heading of "Correct Tooth Form;" "Mating of Hobbed and Shaped Gears;" "Possible Machine Errors;" and others. Designed for those engaged in the operation of gear shaping equipment, and in the selection and maintenance of shaper cutters. Bulletin GS-42. Michigan Tool Co., 7171 E. McNichols Road, Detroit, Mich.

1087

• POTENTIOMETER PYROMETERS—Clear and concise information on the design and operating features of the Brown Potentiometer Pyrometer and Accessory equipment is given in Catalog No. 1105. A useful source of information to anyone interested in indicating, recording and controlling temperatures. Temperature measurement by the radiation method is featured with a description and cross section view of the Brown Radiamatic Sighting Tube. Automatic control systems are described and their operation explained. The Brown Instrument Co., Wayne and Roberts Ave. Philadelphia Penn.

1088

• BRUSHES—A 24-page catalog describing Keystone Metal and Metal-Graphite brushes which are produced in a wide variety of combinations and extensively used on low voltage machines, on plating, electro-cleaning, battery charging, and welding generators, on starting motors, on slip rings and allied applications. Included are six specification tables. Keystone Carbon Co., Inc., Saint Marys, Penn.

1089

• WIRE CLOTH—A 116-page handbook containing useful information for the practical buyer of wire cloth and other woven wire products, covering the selection, its application and ultimate use. Profusely illustrated, the book also includes instruction on how to compute mesh, space, and open area, as well as a section on selecting, ordering and testing. Newark Wire Cloth Co., 351 Verona Avenue, Newark, N. J.

1090

• CARBON TOOL STEEL — Bulletin 142, an eight-page folder, tells the story of Jessop Washington Carbon Tool Steel. Explanatory charts and diagrams on tempers and applications, hot working and heat treatment, and forging are included. Jessop Steel Co., Washington, Penn.

1091

• PAVER—A catalog describing the 1942 Rex 34E Paver, which is a two-compartment paver with a capacity of 34 cu. ft. of concrete. Incorporated in its operation is the Rex mechanical man which controls charging, discharging and mixing operations automatically. Bulletin 407. Chain Belt Co., 1600 West Bruce St., Milwaukee, Wisc.

1092

• MINING AND MATERIALS HANDLING—A new 12-page, illustrated folder, showing the complete line of LeTourneau mining and materials-handling tools on some of the larger mining operations. Illustrated throughout, descriptive captions telling how the job was handled is the theme of the booklet. Modern methods and equipment for increased production are explained. Form A-282. R. G. LeTourneau, Inc., Peoria, Ill.

Lumber Appeal

An appeal to the governors of the Pacific Coast states to review state legislation and practices which may restrict lumber production is being made by Frederick H. Brundage, western log and lumber administrator for the WPB.

"For example," he said, "in some instances there has been the practice to penalize owners of trucks for overloading by means not only of a fine but also a penalty that keeps the truck off the road for a period of from three to fifteen days, and also there is legislation forbidding the hauling of logs on Sunday, which legislation presumably was based on the assumption that passenger traffic on Sunday used to be much heavier than such traffic on weekdays.

"Log and lumber production on the Pacific Coast is below that for the corresponding months of last year, primarily because of the scarcity of skilled labor, high labor turnover, and poor weather this spring. The movement of skilled workers out of logging on the Pacific Coast has resulted in their replacement by less skilled workers which is one of the important factors in the decline of lumber production. In order to aid in maintaining workers in certain critical skilled occupations, arrangements have been made with the Selective Service System for the listing of 'critical occupations' in the Pacific Coast states so that persons skilled in such occupations may be considered by their local boards for temporary deferment from military service as 'necessary men' for lumber production in furtherance of the war effort.

"Since part of the labor scarcity arises from the loss of man-hours in workers moving from one operation to another or from one industry to another, I request that operators and the U. S. Employment Service make every effort to reduce labor turnover and the resulting loss of production throughout the country. I also ask that the workers and their unions join in the effort to reduce excess wandering from job to job."

A surplus rather than a shortage of paper exists, the Domestic Trade Committee of the San Francisco Chamber of Commerce announces. A survey reveals that warehouses are supplied adequately and mill production has been reduced pending consumption of the present oversupply.

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WIRE ROPE

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Shackles—Turnbuckles—Splicing
V-Belt and Roller Chain Drives
Alemite Guns—Plomb Tools
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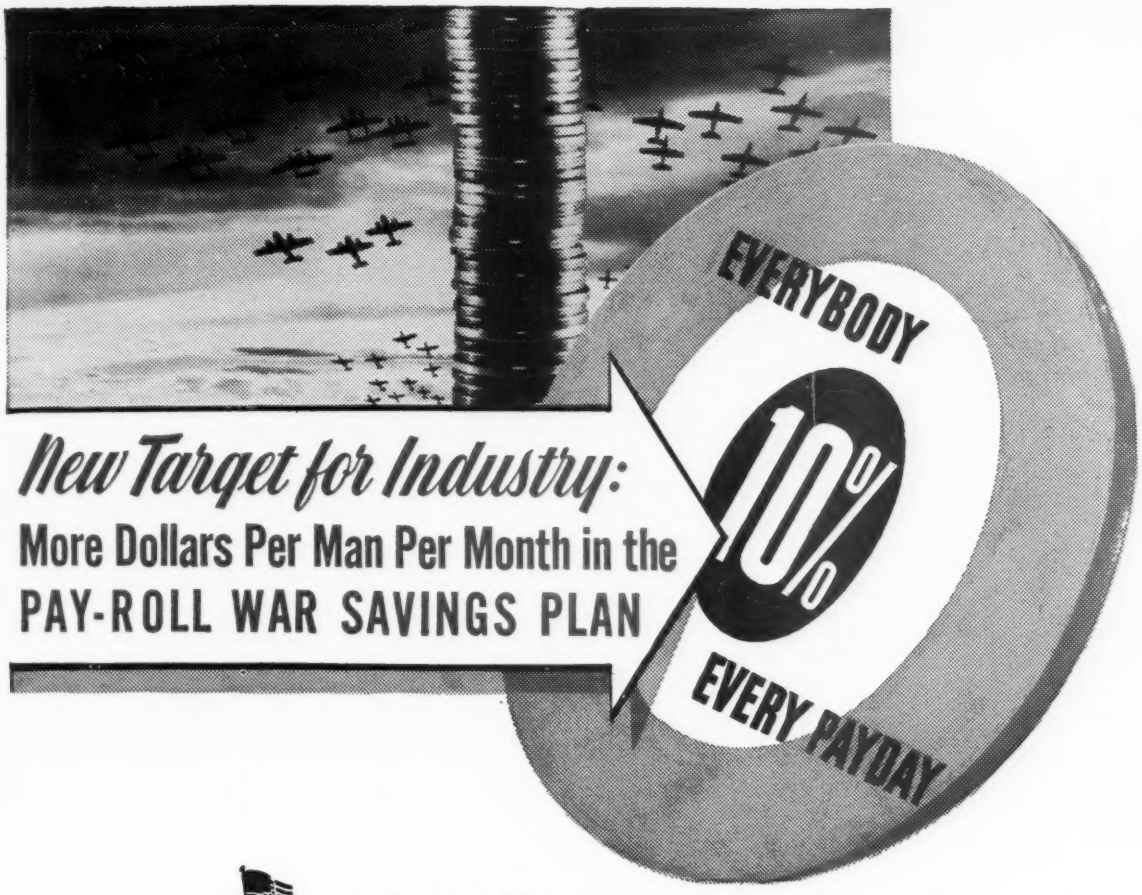

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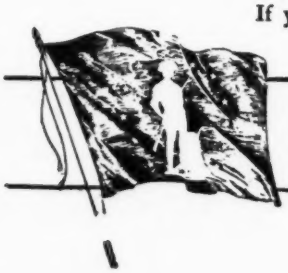

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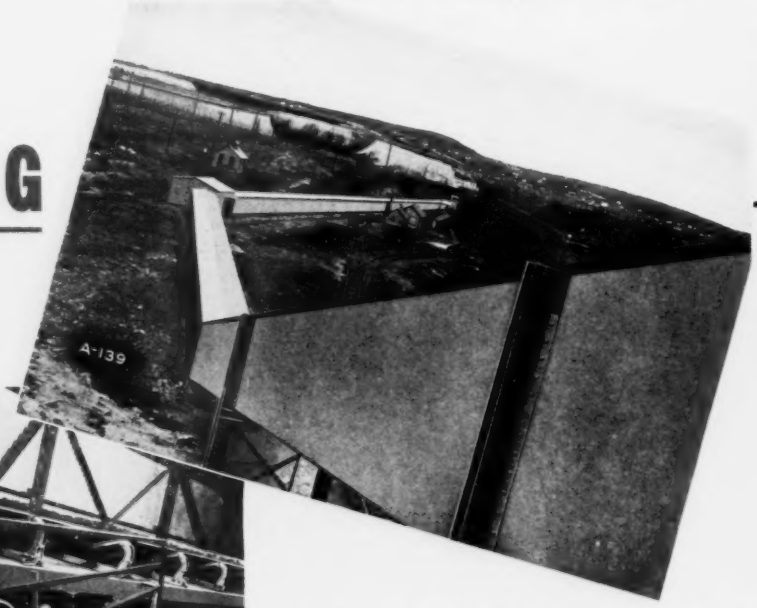

- *Above — Long S-A Belt Conveyor gallery in which iron ore is being handled from underneath open pit mine.*
- *Left — Head or drive end of Belt Conveyor housed in gallery shown above.*

In buying Material Handling Equipment, "IT'S THE COST PER TON OVER THE LIFE OF THE EQUIPMENT THAT COUNTS." The two most important factors which determine the cost per ton of handling bulk material with Conveyors, Elevators, Feeders and auxiliary equipment are (1) *the engineering or design of the installation,* and (2) *construction, or quality and workmanship of the conveyor equipment.*

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- **Belt Conveyors**
- **Bucket Elevators**
- **REDLER Conveyor - Elevators**
- **Feeders**
- **Speed Reducers**
- **Bearings**
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- **Bin Level Controls**
- **Gates**
- **Winches**

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